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Ten years ago: The issue of VEREINARY MEDICINE for November, 1917, contains the names and addresses of 777 veterinary officers commissioned in the army and assigned to duty.

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It has been suggested by Smith and his associates in Public Health reprint 1077, that the tuberculin reaction may vary as a result of vitamin deficiency in the infected animal.

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The Rules Committee of the American Kennel Club has ordered that after July 1st, 1928, no cropped dog can be shown at an A. K. C. show. The delegates will give final decision at their December meeting.

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Goats' milk, produced under sanitary conditions and promptly cooled, is palatable; however, odors are readily absorbed and weed flavors are prone to occur when goats have access to weedy pastures. Thus, by proper feeding of goats and the proper care in production and handling, goat's milk is a valuable food.

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Are we living in an age of specialization of human endeavor? The man in early historical times was his own barber, dentist, doctor, lawyer and what not, then as civilization advanced individuals became specialists; thus there was the blacksmith, baker, shoemaker, surgeon, veterinarian, etc. At the present time, there are some live stock producers that are vaccinating their own hogs, sheep, cattle, horses and poultry, shoeing their own horses, castrating, dehorning, etc. Are they advancing or retrogressing?

New Mexico is becoming famous for its milk goats. Reports indicate there were approximately 80,000 milk goats in New Mexico in 1926. Over 7 per cent of farms had milk goats and their popularity, usefulness and economy indicate that they will be more numerous.

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The sooner the private slaughter-house is abolished altogether the better for all concerned, as most of the objectionable meats placed on the market emanate from these undesirable and insanitary places.—Geo. Hilton, Veterinary Director General, Canada.

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The campaign for eradicating tuberculosis in domestic livestock made exceptional progress during the fiscal year ended June 30, 1927. Records show that 347 counties have completed the necessary official tests and have qualified for recognition as tuberculosis-free areas. This number constitutes more than 11 per cent of the total number of counties in the United States. In addition 945 counties were actively engaged in the area project at the beginning of the current fiscal year.

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A report of the Federal meat-inspection service shows that approximately 4 per cent more food animals were slaughtered under Government inspection during the fiscal year ended June 30, 1927, than during the preceding year. The increase was also 4 per cent over the average slaughter during the preceding 10-year period. Animals receiving Federal inspection during the last fiscal year numbered 70,747,182. The classes, in order of their numbers, were swine, sheep, cattle and calves.

The active principles of plants, mainly alkaloids and glucosides, form one of the most important chapters of chemotherapy. The first knowledge of their existence was derived from Serturner's discovery of morphine, in 1806.

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Alkaloids are nitrogenous, crystalline substances derived from plants. They form salts with acids, usually soluble in water, in which they are most frequently employed on that account.

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Glucosides are active principles of plants that can be broken up by the action of a mineral acid into sugar and another radical. Resins, also of vegetable origin, are mixtures of various substances usually not soluble in water, but freely soluble in alcohol, ether and chloroform; and oleoresins are mixtures of resins with a volatile oil.

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A total of 1249 cities and towns have taken positive steps to safeguard their milk supply from the possibility of disease transmission. Of these 874 municipalities have tuberculin testing ordinances and 375 provide an option between tuberculin testing and pasteurization. Chicago requires both tuberculin testing and pasteurization.

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It is inaccurate to think that money outstanding on credits is only a loss of six per cent. It is much more than that. It finds representation in loss of time, stationery, stamps, the attention of those responsible for its collection. All these factors mass themselves into a loss of something like 15 or 20 per cent.

Write them off or collect them!

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A pack of wild dogs is roaming throughout the swamp areas of Newport News, Va. The origin of these dogs is not known. They have recently attracted attention of nearby farmers by the occasional killing of farm animals. These dogs are said to be as wild and more ferocious than wolves, and thus far it has been impossible to get within shooting distance of them.

The deficiency of vitamin D is evidenced more promptly in growing shotes than in mature swine. Thus, shotes that are given a ration of white corn are prone to evidence rachitic symptoms within a few months, whereas brood sows usually show no evidence of vitamin deficiency for one to two years.

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The appropriations made by states, together with approximately $6,000,000 appropriated by the Congress, for the eradication of tuberculosis from domestic live stock make available for the current year's (July 1, 1927—June 30, 1928) work, approximately $18,500,000. In addition to the appropriations, valuable new legislation, amending various state laws, is expected to speed up the work in a number of states.

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Ross and Martin, in the *Journal of Tropical Medicine and Hygiene,* London, report nine cases in which mercurochrome was used in the treatment of undulant fever. In one case in which three injections, of 12 cc. of a 2.5 per cent solution of mercurochrome —220 soluble, was injected intravenously in two doses at six day intervals, rapid and sustained improvement followed. In the remaining cases, the treatment was ineffective or indecisive. In view of the identity of the organism causing undulant fever in man and infectious abortion in cattle, the trial of mercurochrome in the treatment of the latter disease would seem justified by the report of Ross and Martin.

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1. Horses may be wintered on rations costing as low as 8.2 cents per day.
2. Slight losses in body weight do not prevent them doing a good spring's work, providing grain becomes a part of the ration.
3. Moderate feeding, with plenty of outdoor exercise, seems to contribute toward less difficulty with sore necks and shoulders.
4. Where alfalfa meadows are available, the late fall growth may be utilized by horses, without damaging the seeding and greatly reducing the cost of wintering the animals.—*Quarterly Bulletin,* Mich. Agr. Exp. Sta.

## THE PHILADELPHIA A. V. M. A. MEETING

The 64th annual meeting of the American Veterinary Medical Association held in Philadelphia, September 13th to 16th, 1927, was a noteworthy and very satisfactory one. No ballyhoo and no entertainment to interfere with the meeting, but plenty of social features for those so inclined. Lots of business accomplished and a good program rendered were the features of the meeting.

The attendance was rather a disappointment, totalling about 600 members and visitors, which was less than the attendance at Lexington last year, and but half as large as the attendance in Des Moines in 1924. It is thought that the small attendance was due to two factors, one the very considerable distance of Philadelphia from the center of veterinary population and the other, the late date of the meeting. The meeting was set about three weks later than usual this year, to avoid the torrid weather common in Philadelphia during the latter half of August, but the weather was hot during the meeting, very hot, just the same.

Amendments comprising a rather thorough revision of the constitution and by-laws were proposed and laid over until the next meeting for final action. It would seem that the association spends considerable of the very limited time at its disposal during its annual meeting in the consideration of changes in its constitution and by-laws, and at the same time does not take very seriously the provisions of this same constitution and by-laws. An example of this was shown in the election of president, the rules providing that a majority of the votes cast shall be necessary for election, whereas actually the nominee receiving a plurality and not a majority was declared elected.

The literary program was splendid and an opportunity for careful study of the various subjects discussed when they are published will be eagerly awaited.

The election of president resulted in the selection of Reuben Hilty, a practitioner of Toledo, Ohio, a thoroughly satisfactory and eminently fitting selection. The other nominees for the office of president, were D. H. Udall of Cornell and M. C. Hall of Washington, splendid presidential material all of them. The association could have made no mistake in the selection of a president from among these candidates.

### The New President

Doctor Hilty was graduated from the Veterinary Department of the Ohio State University in 1907 and practiced first at Bluffton, Ohio. In 1909 he formed a partnership with the late Dr. J. V. Newton of Toledo. Since Doctor Newton's death in 1925, Doctor Hilty has conducted the practice alone. He has served the Ohio State Veterinary Medical Association as secretary and president and his state as a member of the state board of veterinary examiners. Doctor Hilty entered the army in 1917 as major, served in France and was discharged in 1919 in the grade of lieutenant-colonel. Except for his period of army service, Doctor Hilty's whole time since his graduation has been devoted to veterinary practice.

### Minneapolis Next

Minneapolis was decided upon for the meeting place in 1928, another good selection.

The committee on local arrangements performed their part to perfection. There was never any confusion, nor any lack of information as to where the meeting of a given section could be found at a given time or in the arrangements for the numerous excursions to places of historical and veterinary interest about Philadelphia.

The matter of changing the name of the association and the profession and the degree conferred by the veterinary colleges came in for considerable discussion, but the proposition found little favor with the majority of those in attendance and while the matter was referred to a committee and will come up for further consideration next year, the likelihood of a change in the near future appears remote.

The clinic was instructive and particularly well attended, and here the regrettable absence of the late John Adams was even more noticeable than at the remainder of the meeting.

Among the papers of unusual interest presented at this meeting may be mentioned one on "The Bacteriology of Periodic Ophthalmia in Horses," by E. C. Rosenow of the Mayo Foundation for Medical Education and Research, and another on "The Control of Poultry Diseases in the United States," by John R. Mohler, Chief of the Bureau of Animal Industry.

### Periodic Opthalmia

Doctor Rosenow briefly reviewed the literature on the subject of periodic opthalmia in horses and gave in detail an account of his investigations of this disease conducted over a period of several months. Doctor Rosenow believes from his investigation that periodic opthalmia in the horse is an infectious disease probably not directly related to certain districts, except that the infection is prevalent in these districts, nor to any form of nutritional deficiency, two theories as to its etiology that have been rather widely held heretofore.

Doctor Rosenow believes that periodic opthalmia in horses is caused by slender rod-shaped bacillus; that the disease is hematogenous, and that the source of infection is ordinarily the feed. He was able to isolate this bacillus from suspected forage in 70 per cent of the cases, to isolate it from feed on 50 per cent of the farms where periodic ophthalmia existed in an active stage, and from the feed in only 10 per cent of the farms where the disease was not found. The bacillus was occasionally found in the conjunctival sac in unaffected horses, and far more frequently in the conjunctival sac of affected eyes. He was able to isolate the organism from the humors of an affected eye in something like 25 per cent of the cases and in a very considerably higher percentage of cases from the solid tissues of the affected eye.

A bacterin was made from the bacillus and used in a limited number of cases for the prevention of the disease in animals exposed to natural infection. No case receiving the prophylactic vaccination developed the disease. The bacterin was further used in a very limited number of cases as a treatment with highly satisfactory results.

Periodic ophthalmia has so long baffled the efforts of veterinarians and has been the subject of so many mutually opposing theories as to cause and proper treatment that we shall await confirmation of Dr. Rosenow's findings before regarding the problem as solved; but in any case, whether the findings be confirmed *in toto* or whether additional research shall necessitate some modification, Dr. Rosenow's contribution to the information available on this important subject and his elucidation of at least certain matters concerning its nature, constitute an important contribution to the veterinary literature of the year and distinct progress in the control of a stubborn disease of horses, the cost of which runs into vast sums annually.

### Poultry Disease Control

On the subject of "Control of Poultry Diseases in the United States," Dr. Mohler pointed out that the United States is the most important poultry raising country in the world, producing more than one-third of the world's supply, that breeders sold 800,000,000 baby chicks last year, that the hens collectively lay eggs at the rate of 760 a second or 2,000,000,000 dozen a year, and that the annual value of poultry products is now considerably in excess of the $1,000,000,000 or 16 per cent of the total livestock production of the country, and outranked only by dairy products and the swine industry.

For years, Doctor Mohler commented, poultry raising was an incidental enterprise on the American farm. Poultry diseases were regarded as of little consequence, and chickens were left to shift for themselves. "The last decade, however," he said, "has witnessed an amazing change in the scope, and methods of poultry and egg production, as the industry has rapidly forged to the front line of dignified commercially productive enterprise. The humble hen is now recognized as an asset, a chief source of income, and as such is favored with the best of feed, shelter and attention," and the increase in size and profitableness of flocks makes it increasingly feasible for poultry

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raisers to employ veterinarians in case of disease in their flocks.

The speaker explained that, legally, the hen has never come into just recognition by the law, and has not had a fair share of the attentions of Congress and appropriations for study and control of the diseases of poultry. An exception was the outbreak of the European fowl pest in 1924, when Congress did recognize the poultry industry by appropriating funds for eradication in the nine States to which the pest had spread. Some work has also been done with avian tuberculosis which has proved approximately as infectious to swine as has bovine tuberculosis. And in the last appropriation bill the Bureau of Animal Industry was authorized to use funds for the control and eradication of poultry diseases.

The most effective control of poultry diseases must come through poultry raisers themselves who will employ veterinarians skilled in poultry diseases. Federal and state action in case of diseases of poultry should aim at the protection of domestic fowls from foreign contagion, to prevent the spread of poultry diseases from state to state, and to eradicate communicable diseases within a state when they appear. Cooperation among states is advisable, and each state in which poultry raising is important should establish a competent veterinary poultry service which should include poultry research laboratories and competent workers. Quarantines should be based on scientific information and not on business expediency, and funds should be available for the control or eradication of communicable diseases. In all such efforts Doctor Mohler pledged the aid of the Bureau of Animal Industry to as full an extent as Congress may authorize.

### Prof. Dr. B. Bang

Of course, an outstanding feature of the meeting was the attendance of Prof. B. Bang of Copenhagen, and his discussion of tuberculosis in cattle. We were greatly pleased by the presence of Prof. Bang and felt honored that he should thus a second time visit our country. Because so much was expected from this world wide authority on tuberculosis, Dr. Bang's discussion of tuberculosis in cattle proved the major, almost the only disappointment of the whole meeting.

In the opinion of most of those who heard him, Prof. Bang harked back to the views, the understanding and the methods of the closing years of the nineteenth century, and touched not upon the twentieth century matters. Fortunately, he furnished the facts to confute every argument that he advanced for European methods for handling tuberculosis in cattle, and his discussion is not likely to seriously embarrass the American tuberculosis eradication project where it is published in full and considered as a whole.

In short, Prof. Bang still advocates the method proposed by him at Budapest at the International Congress for Hygiene and Demography in 1894, and slightly altered at the International Veterinary Congress at Baden-Baden in 1899. The plan he advocates is essentially but a slight modification of the "Bang Method" that has been tried in America many times with uniformly unsatisfactory results, and which in thirty years has not succeeded in eradicating tuberculosis from a single country in Europe or any area within a country of considerable size.

To quote: "I will maintain that the safest way of rooting out tuberculosis in a herd, that has long been infected, is to put the newborn (and perhaps also some very young) calves in a separate, clean room and feed them on tuberculosis-free milk. Such calves will easily be kept free from tuberculosis in nearly all cases."

And again: "I do not at all wish to criticize your methods, but you may easily understand that I feel a little astonished to see that you think it necessary to slaughter all reacting animals, even if they do not show the slightest symptoms of tuberculosis except the reaction."

And again: "If you are rich enough not to consider the expense, I do not at all object to your method, but I want to emphasize that it is possible to attain the goal in a much cheaper way—as we poor Europeans are obliged to try to accomplish it. I know there are, in your country, some farmers who oppose your method. I have of course

no idea at all of the power of this opposition, but if there might come a time when the government was no longer so ready to cover the expenses as it has been for years, I dare to draw your attention to the plan just pointed out to you."

The plan referred to is not to test highly infected herds at all, but to remove the calves when dropped to a separate part of the barn and to raise them on tuberculosis-free milk. He states that in this way, a highly tubercular herd can be changed to a tuberculosis-free herd in four to six years, inferentially at only the cost of a partition in the barn, which he states in one case where the method was successfully applied, amounted to only $2.50.

Although Prof. Bang cited figures to show that a tuberculosis-free herd would produce an average of 77 pounds more butter per cow per year than a similar herd would produce if infected, he does not draw the obvious conclusion that a large number of infected cows, but not clinical cases, are what the dairymen term "boarders" and thus their removal from the herd an actual gain to the dairyman aside from any consideration of eradication of the disease, the gain in removing such boarders probably more than off-setting any loss sustained by the removal of affected animals that might for a few years, or even longer, return a profit on the feed and care and shelter given them.

If there is anything in the old saying about a tree being known by its fruit, Prof. Bang brought with him facts that not only justify the American methods which he regards as unnecessarily expensive, but the strongest possible argument for our relying upon those methods to the exclusion of others; for, notwithstanding the professor's great prestige in his own country and his thorough understanding of the method he advocates, together with the low cost of and ample supply of labor in his country, almost no progress in ridding the country of tuberculosis in cattle has been made in thirty years; yet Denmark is but one-third as great in area as Pennsylvania and its population, less than half of that of Pennsylvania, does not equal that of Massachusetts, nor has the adjoining country of The Netherlands made any better progress notwithstanding its proximity to the place where the "Bang Method" originated, nor the prestige which Prof. Bang enjoys among his neighbors scarcely less than that at home. In area, Holland is but half of South Carolina, its population less than that of Illinois.

Prof. Bang's lecture strongly emphasized what the eradication of repeated outbreaks of foot and mouth disease had previously shown, and that is, that the best live stock sanitarians of Europe could, if they would, sit at the feet of the live stock sanitarians of America and learn much.

## ANIMAL LOSSES IN THE MISSISSIPPI FLOODS

More than 225,000 head of horses, mules, cattle, swine and over 1,300,000 poultry were lost in the Mississippi river flood area, which covered 4,417,500 acres in 124 counties or parishes, as a result of levee breaks and swollen local streams during May, June and July, according to a summary of estimates just issued by the Department of Agriculture.

The flooded area in Arkansas is placed at 1,838,400 acres; Louisiana 1,112,200 acres; Mississippi 861,000 acres; Missouri 359,000 acres; Tennessee 195,000 acres and Kentucky 50,000 acres. Arkansas lost 9,250 head of horses and mules; 7,100 head were lost in Louisiana; 7,375 in Mississippi; 1,000 in Missouri, and 600 in Tennessee.

Cattle losses in Arkansas were 21,160 head; 19,630 head were lost in Louisiana; 9,000 in Mississippi and 800 in Tennessee. Of swine, 66,590 were lost in Arkansas; 55,930 in Louisiana; 22,690 in Missouri and 2,900 in Tennessee. Poultry losses totaled 525,440 in Arkansas; 487,830 in Louisiana, and 263,300 in Missouri.

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In the eight years from 1917 to 1925 the per capita consumption of milk in the United States increased from 42.2 gallons to 54.8 gallons. Most of this increase was in the cities.

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## HOBDAY PRINCIPAL OF THE R. V. C., LONDON

Major Frederick T. G. Hobday, C. M. G., F. R. C. V. S., F. R. S. E., has been elected principal of the Royal Veterinary College, Camden Town, London, succeeding Sir John McFadyean, whose retirement from the position was noted in VETERINARY MEDICINE last month.

The appointment is an eminently fitting one. Probably no other British veterinarian is so widely and so favorably known as Major Hobday. His reputation as a veterinary practitioner, particularly as a surgeon, is world wide. As editor of The Veterinary Journal, London, for many years he is known by reputation to the wide circle of readers of that publication among American veterinarians. His visit to North America in 1911 and the part he took at the clinic of the A. V. M. A. meeting held at Toronto in that year, added to the luster of his reputation in this country.

He has been a frequent visitor to the veterinary colleges and other points of veterinary interest in continental Europe. As an author, his "Atlas of the Anatomy and Physiology of the dog," his "Anesthesia and Narcosis of Animals and Birds" and his "Surgical Diseases of the Dog and Cat" have given him a very high rank in veterinary literature. He will bring to his new position a vast experience that should be of untold value in shaping the course of instruction to meet the needs of veterinary students, particularly the veterinary student whose goal is the field of veterinary practice.

Professor Hobday is an honorary member of the American Veterinary Medical Association, a fellow in the Royal College of Veterinary Surgeons, of which body he is an examiner, and with his partner, Mr. Harold A. Stainton, conducts one of the large veterinary practices in London. His consultation practice reaches throughout the British Isles and occupies most of his time. He has taken a great interest in veterinary problems having a bearing on public health and has been a frequent contributor to programs of British medical associations.

He was graduated from the Royal Veterinary College, London, 1892.

The progress of the profession will depend on the amount of work done; for knowledge is not mothered by emotion and fathered by wish; it is the daughter of protracted mental labor, the inevitable offspring of difficult intellectual delivery. —J. P. Wilson, Hamilton, Ohio, A. V. C.

## IMPORTANCE OF A COMPETENT VETERINARY SERVICE

The great importance of maintaining a competent veterinary organization in an agricultural country cannot be over-estimated, as the live stock industry is constantly in danger of serious depreciation by the dissemination of the infection of contagious diseases, and even of total destruction from one or other of the various foreign plagues to which the domestic animals are unfortunately subject.

The field for the veterinarian has undergone a change in recent years, and there has been a gradual decrease in the number of students enrolled at our veterinary colleges. This is largely due to the fact that other professions, and commercial and industrial fields are offering better prospects.

The men best suited for our service are recent graduates, professionally capable, with good judgment and tact. The following qualifications are also essential: suavity, integrity, firmness and good sound common sense. They must be sufficiently well equipped as to general education to be able to comprehend the scientific details of modern sanitary and preventive work, and without encumbrances which may hinder their rapid transfer from place to place as the exigencies of the Service demand.

It is now very apparent that the maintenance of an efficient service will in the future depend much upon the encouragement given the veterinary student. Unless the service is made more attractive by providing a higher rate of remuneration, with much better prospects for more rapid promotion to those rendering efficient and loyal service, we cannot hope to induce the desirable type of student to specially prepare himself for the Service as a life vocation.—From the annual report of the Veterinary Director General (Geo. Hilton, V.S.), Department of Agriculture, Canada.

# Excerpts from Foreign Veterinary Publications

By M. C. BROWN, Ames, Iowa

### Serologic Examination of Milk for Diagnosis of Infectious Abortion[1]

Results of research by several investigators concur in denying any diagnostic value in the agglutination and in the deviation of the complement practiced or made with the milk in the search for infectious abortion, indications failing to declare themselves in many infected animals. In reality, the process does very well if the milk of several recently aborted animals is tested, the animals being from the same stable. On the contrary, the process is not satisfactory when individual animals are in question.

In the course of these investigations, there is observed an anticomplementary action of the samples of milk due to lactic acid. The addition of bi-carbonate of soda for the neutralization of the liquid avoids this cause of error.—Abstract in Rev. Gen. de Med. Vet., Jan. 1927, p. 23.

### Rabies Virus in Putrefied Brain Substance

In 1920, Puntoni[2], whose work on Distemper Vaccination in Nuova Veterinaria, December, 1924, attracted attention, seems to have been busy with work on antirabic vaccination. In Annali d'Igiene, September, 1920, he says in regard to the use of phenol for biologic diagnosis of rabies from the brain in process of putrefaction:

The virulence of the rabic brain is diminished by putrefaction. It may even have disappeared so that the different processes of inoculation used to prevent infection are not always followed by success. Inoculation with putrefied substance is never a success unless injected below the dura mater. To get rid of the microbes of putrefaction, use a solution of phenol of 5% in contact with the substance for 24 hours at a temperature of 24° C. to bring about the harmlessness of the inoculation without compromising its success; the pathogenic qualities of the rabic virus are not modified.

[1] A. Marcis, in Allatorvosi Lapok, 1925, p. 143.
[2] Rev. Gen. de Med. Vet., 1921, p. 151.

### Practical Applications of Anti-rabic Auto-vaccination[3]

The anti-rabic auto-vaccination consists in the transformation into vaccine of the central nervous system of the biting animal and in the treatment of the bitten animals with this vaccine.

The method is inspired by the following considerations:

1. The study of the rabic virus, and particularly of the cross vaccinations, shows that there exists a variety of types of a virulent kind and that it is better to vaccinate with a homologous virus.

2. The utilization of the brain of the biting dog economizes the price of vaccines prepared from the fixed virus of the rabbit.

3. The process is simple, very rapid and useful.

The technic of preparation already indicated, is as follows: The cerebrum and the cerebellum of the biting animal are weighed and ground up in a mortar until complete homogenization is attained; afterward, little by little a one per cent solution of phenic acid representing ten times the weight of the nerve substance is added. It is filtered through cotton, through multiple layers of gauze or linen. The filtered emulsion is afterward placed in an oven at 37 degrees for twenty-four hours in order to destroy the virulence.

The auto-vaccine is ready for use after twenty-four hours. One may substitute for the phenic solution a solution of formol at one or two parts per thousand.

[3] Puntoni—Clinica Veterinaria, July 1926, p. 411.

Injection is subcutaneous, avoiding the veins. The dose is 20 ccm. a day for horses and cows and five ccm. for dogs, each day for fifteen days.

We have vaccinated in this way two bovines, four horses and 26 dogs. In 54% of those treated, the bites were in the head region and in 66% the treatment was begun in the course of the second week after the bite.

Complete success resulted.

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### Vaccination of Dogs Against Rabies by a Single Inoculation[4]

The antirabic vaccination of dogs by means of a single inoculation opens up for the prophylaxis of rabies new methods to replace old ones which are no longer in touch with the progress of immunotherapy.

In some countries we note from the work of the Japanese authors Umeno and Doi, a zeal in carrying out and realizing the prophylaxis in rabies in the systematic vaccination of dogs. They have, in the prefectures of Kanagawa and Tokio, vaccinated 31,307 animals with two failures only while Eichhorn in North America, vaccinating 80,000 dogs has had none; in this country, in two years a half million dogs have been immunized (Kraus).

One can no longer discuss the advantages or the success of the new method. It is now only necessary to choose a vaccine efficacious and durable, permitting, after experience acquired in the vaccination of animals, the application of the method in human vaccination.

In a communication presented at the second Brazilian Congress of Hygiene (B. Horisonte, 1924), we have justified the reduction of the number of the inoculations in antirabic vaccination by employing an oily vaccine which permitted the immunization of dogs with a small number of injections.

We are therefore able to summarize the advantages presented by the lipovaccine over all other antirabic vaccines:

1. One can employ with the lipovaccine a larger quantity of virus in each inoculation. The inoculation is complete.

The inoculation of ½ to 2 gm. of cerebral substance containing the virus, the oil rendering the absorption of the virus slower, would replace a continued vaccination of small doses.

2. The rabic virus may be preserved in a refrigerator for three months, the nerve substance being immersed in phenicated olive oil at 5 per cent without undergoing any sensible alteration in its virulence and without increasing the number of germs of contamination.

3. The technic which we propose demands a very simple manipulation which is all-important when one must make a great number of inoculations.

4. The lipovaccine will serve for human vaccination and immunization; its use greatly simplifies the actual process and realizes an economy of time and material.

Technic for the Preparation of the Antirabic Lipovaccine: Grind in a mortar until it becomes a smooth, homogeneous paste, 1 to 2 gm. of cerebral substance, cerebral or medullary substance, either fresh or carefully preserved in phenolized olive oil at 5 per cent. Add to this paste ½ to 1 gm. of pure lanoline and again homogenize. Add two and a half to five ccm. of purified olive oil and mix well.

The quantity of the substance inoculated varies with the weight of the animal.

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### Sanitation and Hygiene Only Effective Control Measures for Infectious Abortion

In two articles presented in the Journal d' Agriculture pratique, Jan., 1926, G. Moussu writes upon Epizootic Abortion. After a lengthy discussion of the malady he sums up as follows:

On the whole, and for those whom the question interests, it may be said that there is not, today, any anti-abortive vaccine recognized as truly efficacious. When a vaccine is efficacious, it must be so for all or for the

[4]N. Botafogo Gonsalvez. (Institut Oswaldo Cruz.) C. R. Soc. de Biol., 1926, 95:996-997.

great majority of cases. In principle, if there were an efficacious anti-abortive vaccine, it would inevitably be in use everywhere and almost exclusively utilized with heifers before being put to service. Preventive precautions should be used first, before any attempts at vaccination. Surveillance of the drinking water; suppression or disinfection of ponds when drainage from contaminated stables runs in their direction; isolation of aborted animals immediately after the accident; methodical disinfection of such animals before return to the common stable, using in the disinfection genital irrigation with boiled water then with iodinated water at 1 per 1,000 every day for a fortnight, or, preferably, the use of antiseptic ovules; isolation of animals recognized as on the verge of abortion in order to avert the infection of common stables, their submission to the above-indicated treatment; the later disinfection of all stables which have sheltered aborted animals; avoidance of breeding healthy animals to a bull known to have been bred to animals which have aborted, all these precautions, without doubt constitute measures very difficult at times to carry out even in establishments the best managed and nevertheless essential to immunization.

Certain breeders attempt to rid themselves of their troubles by destroying a whole stable starting anew with new recruits. If luck favors the undertaking, it will be crowned with success but the mere fact of the recruiting with a sufficient number of animals almost fatally exposes one to the introduction of a contaminated or infected animal which will again implant the disease in places which one has thought to have purged. The situation will, in a year or two, be the same as before and the pecuniary sacrifice will have been a total loss and every opportunity will be presented to repeat the unhappy experience. It is wiser to try all preventative means which can be made: precautions of hygiene, of medication, vaccinations, all uncertain, it is true, or with only relative efficacy but whose cost is still less than wholesale and, after all, doubtful renewal.

### Toxic Action of Emetics Upon Domestic Animals, Particularly the Horse†

Practitioners know that emetics in presumably normal doses sometimes produce intoxications in the horse which are sometimes fatal, sometimes not. The symptoms are colics or founder. In case of colics, there is restlessness, sweating, abdominal pain, fever, acceleration of the pulse and respiration, weakness of the heart, cramping of the muscles and general weakness. Lesions of the digestive apparatus occur and sometimes, septicemia, when the lesions are lacking. Neyer attributes the founder and septicemia appearing in the absence of the lesions in the digestive tract, to a violent hemolysis shown by the acceleration of the pulse and heart, the restlessness, the muscular cramps and the general grave symptoms.

The intoxication occurs independently of the emptiness or the repletion of the stomach at the time of ingestion.

The danger of this intoxication is such that it might be better to substitute arsenic for the emetic.

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### Treatment of Cancer with Lead§

Knowing the extreme sensitivity of embryonic tissue to salts of lead, the close relationship as much chemic as physio-chemic, which unites the embryonic tissue with the cancerous tissue, it was clearly indicated that lead salts might be useful in the treatment of cancerous affections.

For this reason the research institute of Liverpool have utilized colloidal suspensions. The suspended particles being hardly 0.3 micron in size. There are given at first two intravenous injections of 20 cc. of this solution at intervals of ten days then two others of 15 cc. at similar intervals.

After a month the injections were repeated in smaller doses (10 cc.) at varying intervals until a total of 120 cc. had been given making 0.6 gr. of lead.

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† Neyer, ——. Deut. Tierarzt. Woch., March 6, 1926.
§ Pagniez, Presse Médicale, Feb. 27, 1927.

An encouraging percentage of the patients were cured.

This therapy is successfully associated with surgical- and radio-therapy. It is important however to emphasize the fact that such injections are not exempt from danger and that extreme prudence should be practiced, and a technic followed which would give the maximum of security. Abstract in Annales de Medecine Veterinaire, April, 1927. P. 177.

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## Histological Researches Upon Testicular Grafts in Mammals*

We have attempted to give in detail the histologic fate of testicular grafts and, also, the reactions of the tissues around the grafts. Our investigations have dealt with the white rat and 121 experiments have been carried out: 83 auto- or homotransplantations and 27 heterotransplantations. In more than 21 different transplantations in addition, rabbits or guinea pigs were used. These observations have covered periods of from two days to eight months.

The technic has been varied: grafts of the entire testicle, in fragments or ground; in sub-cutaneous cellular tissue, in the peritoneum, upon the outer surface of the albuginea, in the interior of the albuginea; in animals, normal or castrated, of the same sex or of opposite sex.

In general, the results were as follows:

a. As a distinguishing feature, we note the death of the graft whatever were the operative conditions. On the second or third day, appear necrotic modifications, distinct and accentuated, of all the histologic elements. About the seventh or eighth day, the degenerescence is total, except at the periphery where there exists live inter-tubular connective tissue of new, young appearance. From the tenth to the twentieth day, appear voluminous and transparent cells whose significance is open to discussion. This histologic condition appears to remain without any great modification during several months.

The cells of the seminal line die rapidly. The aspect of the tubes quickly becomes troubled, uniformly acidophilous. Sometimes the central tubes remain normal for a longer time: their cells, although extinct, keep their original contours; the nucleus is still clearly visible. There are often discernible chromatic debris, of which some, by their form, suggest spermatozoids but these are manifestly dead; we have never discovered the presence of live spermatozoids. In short, there exist in these tubes, hematophilic deposits whose calcareous nature can be proved by microincineration.

b. Beginning with the tenth day, appear large cells (20 to 25 microns), with usually clear edges, possessing a large nucleus, an abundant protoplasm, transparent, areolar or reticulated, somewhat spongy, rich in fat, with granulations more or less crystalloid. They occupy the inter-tubular spaces and thus resemble closely the normal interstitial endocrine cells. They may occur even in the interior of the tubes. Certain ones are sometimes polynuclear (giant cells), or they present a pseudosyncitial aspect which might confuse them with the Sertoli syncitium.

It seems clear that they are not survivals of the graft; because, in the earlier stages of the grafts, everything has degenerated and these elements do not appear until about the tenth day. They are cells which have arrived along with the connective cells or tissue of the host, macrophages which develop at the contact of the graft in process of resorption. There is reason to believe that the genesis of these cells, so slow in appearing, is leagued with the tardy resorption of the graft, the resorption provoking modifications in certain cells of the tissue which has invaded the graft. Can these cells be likened to elements of the interstitial gland? Can they be accorded endocrine capacities? It is open to question and difficult to decide in any certain fashion.

c. This applies especially to the auto- and to the homotransplantation whose

* Jacques Rollet. Comptes rendus de l'Academie des Sciences, Paris, March 28, 1927. P. 839.

results are much alike. On the contrary, in the heterotransplantation, the appearances are quite different: there is a rapid transformation into fibrous tissue of the whole transplant which disappears or, else, the graft remains inert like a foreign body and the connective tissue, originating from the host, penetrates it only very superficially. In these cases, there is never any sign of the voluminous cells to remind one of interstitial elements. In host and graft, we encounter only some cells with protoplasma reticulated and transparent, but much smaller. Thus, from the morphological point of view, the heterotransplantation seems to yield very different results compared with those of the auto- or homotransplantations.

Our researches make it clear that there is no true graft but the morphological aspects of the transplant with the slow resorption of the graft may perhaps explain the physiologic results of testicular grafts as reported from different sources.

### Treatment of Tetanus*

Daily injections of from 250 to 350 cc. of a heated solution of phenol at 3%, prolonged during six to eight days have given good results in the treatment of tetanus. The injections are made with a syringe of ten to twenty cc. to assure the slow resorption of the liquid injected. The injections must be repeated until the violent muscular contractions are checked which happens when forty to sixty cc. have been injected. The treatment is completed by sub-cutaneous injections of pilocarpin or, in case of need, of eserin.

### Abnormal Loop in the Colon of a Horse**

In a horse of 30 or 35 years which had often suffered from colics, the autopsy showed the existence of a large abnormal diverticulum in the lower part of the colon. This anomaly began at the transverse colon and extended, in part, along the lower right side. It was divided into two portions of which the larger, at the right, was 70 cm. long and 70 wide. It was itself subdivided. The left portion was 45 cm. long and 30 wide. In addition, there was another loop, 25 cm. long, which spread itself between the meso of the left and that of the lower part. These diverticula were filled with fine sand. The loops were probably formed by the pressure of the accumulated sand.

### Isolation of B. Anthracis by Bone Marrow Culture††

The author, Balozet, has made use of the Wulff process for the isolation of the anthrax bacillus by a culture of bone marrow, an investigation which he has extended to a research dealing with avian typhus and avian cholera. In all cases of symptomatic anthrax, experimental or natural, the bone marrow, taken a few hours after death, produces a culture of Clostridium chauvaei; the marrow is free from putrefaction for several days.

## DISTEMPER AND ENCEPHALITIS

The epidemic analyzed by Pugh, including more than fifty fatal cases, was one of what veterinary medicine has long known as the nervous form of distemper. Its chief interest lies in the fact that the occurrence of a number of quite definite "lethargic" cases leads to a closer comparison than has hitherto been made between the human and canine disorders. It appears that both in symptomatology and in the character of the cerebral lesions the two diseases are almost identical. This similarity is so close that the conclusion to be reached is either that the two are the same disease in different animals, or, alternately, that the lethargic and encephalitic symptoms are not in themselves entitled to rank as a "disease"—i. e., a morbid process associated with a single virus—but are merely a particular form of reaction ot which more than one virus may give rise. —*Abstract in Jour. A. M. A.* from the *Lancet,* London.

* Platz, H. In Allatorvosi Lapok, 1926, p. 126.
** Altmann, L. in Allatorvosi Lapok, 1926, p. 42.

†† Balozet, L. in C. R. Soc. de Biol. June 26, 1926.

# Mycotic Vaginitis in Gilts*

By E. A. BUXTON, Vinton, Iowa

IN JULY, I was called to examine a number of young gilts weighing from 25 to 35 pounds each. There were seven at that time affected with what to me appeared to be a very serious malady, especially in such young pigs. The vulva in these young gilts was abnormally large, the clitoris in some of them was inverted, the exposed surface was larger than a walnut. They were continually rubbing these exposed surfaces. They would rub against hog troughs, cement walls, in fact against anything accessible, the itching seemed to be so intense. At first, it appeared to me to be clitorism. These pigs were eating fairly well, and had a slight rise in temperature. Their bowels were quite loose. The affected animals were all given a thorough douching with a strong antiseptic. Instructions were given the owner as to further medication and to report in a few days.

August 1st, one week later, the owner advised me that these pigs were not doing well. I visited them again and found 28 affected. At this time, many of the 28 showed well marked cases of vaginitis, and a few of them had external hemorrhoids. As the disease progressed the everted walls of the vagina became dark red, thickened and corrugated on the surface. This everted vagina hung down several inches, as shown in the illustration, with a well marked line of demarcation where the vagina protruded from the vulva. Some of these tumors, or everted vaginas were three or four inches in diameter and five or six inches long. The protrusion was very tense and felt like a fibroma. The external opening was so small the finger could not be inserted without rupturing the organ. There was more or less difficulty in micturating which may account for some of the excessive straining.

On post mortem examination I found the bladder distended with urine. I could find no abnormal condition of the kidneys other than what one would expect with the bladder so full of urine. As the disease progressed, the appetite was impaired, followed by general emaciation and death.

The treatment consisted of antiseptics, astringents, excision and replacement. I think I was able to check the progress of the

malady by the use of pyoktanin blue; painting the protrusion inside and out several times. This treatment seemed to stop the progress of the disease, as there was no more outbreaks, but all of the 28 affected pigs have since died.

The second herd in which the ailment appeared, started out identically the same as the first one. The majority of a herd of 58 gilts, weighing up to one hundred pounds and in fine condition, were affected with their clitoria as large as a teacup. So far, only one of this herd had vaginitis. The vagina was everted and protruded about three inches. I was called to this case early and by using astringents, antiseptics and hygenic measures including a change of feed at the suggestion of Doctor Kinsley, I was able to reduce this everted organ and complete recovery followed. From what I can gather from practitioners over the state, if this vaginitis increases, and becomes general, as many are reporting, it is going to be a serious condition from a breeding standpoint.

I want to give you a short synopsis of a

*Read at the 14th annual meeting of the Eastern Iowa Veterinary Association, Cedar Rapids, Iowa, Oct. 5 and 6, 1927.

similar condition, clitoritis, vaginitis, elephantiasis, as it appears in the human. Elephantiasis of the genitals is less common in the human female. The labia are most often affected and the ostium vaginae and the clitoris are obliterated. The cases that occur endemically have been proved by Manson, Selva, Cobbold and others to be due to the presence in the fluids of the body of the Filaria sanguinis hominis and its embryos. These are readily found in the chylous urine and the lymph, but swarm in the blood only in the night time. During that time, they are ingested by the mosquitoes, in whose bodies they pass the intermediate stage of their existence. In about three days the in-

sects die, and in bathing or through the drinking water, the embryos are taken into the human body again. The presence of the parasites and its embryos in the channels and glands obstructs the lymphatic flow and lead to the hyperthrophy. The lymphatic vessels and the veins are enormously dilated and the tissues are saturated with lymph. All the elements of the skin are more or less hypertrophied.

Diagnosis: This is readily made from the enormous enlargement of the part. The prognosis as to cure is bad. Though the malady does not endanger life, the interference with mobility and work are very serious. In advanced cases the direct treatment of the condition is not hopeful since neither local measures nor internal remedies will remove the new formed tissues. In advanced cases, excision or amputation of the part may be advisable. But the course of the wound may be a very uncertain one. Other measures, such as litigation of the arteries, the excision of nerves, the use of galvanism, have given no satisfactory results.

### Discussion

In discussing this interesting report, Dr. S. H. McNutt of Ames stated that this type of vaginitis in gilts was distributed over the entire eastern section of Iowa during the past season. Experiments have been conducted at Ames to determine if the condition was infectious, but they had been unable to communicate the disease by irrigating the vaginae of affected animals and then using the same fluid to irrigate the vaginae of unaffected animals. Body fluids of affected animals likewise failed to infect other animals when injected hypodermically. Exposure by contact was likewise negative and their conclusion is that the ailment is not infectious or contagious.

Doctor Pammel visited a number of farms on which outbreaks of this type of vaginitis had occurred, but found no poisonous plants that would account for the condition. An investigation of the corn on which gilts on three of the farms were fed revealed that it was moldy. Some of this corn was taken to Ames and fed to two gilts. They were not examined for six days, at which time both were affected. Another experiment was undertaken with two more gilts to which the moldy corn was fed, and these were examined daily. One of them developed the disease in two days, and the other in four. Following this, they had advised a change in the feed where the ailment appeared in a herd, or rather that they discontinue feeding the corn on which the animals had been fed, supplanting it with chopped feeds or corn from another source. In all cases, the extension of the outbreak stopped with the change in feed and recovery of the affected animals took place. From this, it is believed that the cause of the trouble is a toxin in the mold.

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The cash income from dairy and poultry products in the United States from July 1, 1926, to June 30, 1927, was $3,754,000,000.00 and $2,892,000,000.00 for meat animals.

# Synonyms: Cheap Veterinary Service and Poor Veterinary Service

By S. L. STEWART, Olathe, Kansas

AS THE editor of VETERINARY MEDICINE has left the way clear for comment on "The Farmer's View Point of Veterinary Services," I wish to reply to Dr. W. C. Van Allstyne's article in the September issue. I will not criticize him, or attempt to change his trend of thought but in my estimation he has missed the most important facts pertaining to veterinary practice, farmer economies and veterinary services rendered.

Dr. Van Allstyne in expressing his viewpoint, refers to himself and gives some data in regard to his education, qualifications and career, which opens the way for me to do the same, without (I hope) undue criticism from my brother veterinarians. I will say that I am a white collared veterinarian, which was referred to, who wears a white collar, a laundered shirt and a fairly good suit of clothes every day in practice.

I occupied the chair of anatomy in the Kansas City Veterinary College for ten years and for two years held the same position in the Chicago Veterinary College; and I have taught other subjects. I have licenses to practice in Kansas, Missouri and Illinois.

I have practiced in Olathe, Kansas, "no mean town," 22 miles from the heart of Kansas City, since the spring of 1920. My practice is general, but largely that of dairy cows, which takes me into a part of three counties. I think almost 99% of my practice is in the country, and I believe I know the farmers' wants and the farmers' needs, and their financial conditions at least as well as Dr. Van Allstyne knows them.

I have visited several states, attended many veterinary meetings and short courses, and have some knowledge of veterinary practice, and practice conditions in several states. I come directly or indirectly, one way or another, in touch with farmers over a wide area, and believe I have a good idea of what they want in the matter of veterinary service, and what they get.

I am also interested in the attendance at our veterinary schools. I am sincere in stating my belief that the higher matriculation requirements and the greater length of the course was a forward movement which will benefit the farmers and livestock industry, as well as the veterinarian. Further it is my belief the increase in matriculation requirements had but little to do with the failure of young men to enroll in veterinary colleges in larger numbers. For example, when matriculation requirements were raised in other scientific courses, the attendance fell only for a short time, and then rose again to a normal number. The requirements for entrance to all college departments including veterinary colleges have greatly increased in the last 25 years and yet the attendance has increased until it has reached the point where it is a complex problem for the colleges to solve.

Requirements for a veterinary course increased rapidly until 1916 during the World War, when the slump in attendance began. The higher entrance requirements played only a minor part during that time.

A common laborer demanded 4 to 6 dollars a day, a carpenter 10 dollars, and a common garage mechanic $1.25 an hour, and all other lines of labor were paid accordingly. Quick money to a young man had its influence and played its part then.

I have been told that in some sections of the country the farm bureau activities, by free veterinary services have rendered a damaging influence upon the veterinary profession, which seems to give the idea to young men and people in general, that it was a cheap profession. This created a poor impression on the minds of the young men and gave the profession a discouraging outlook to prospective students. In many cases

this caused him to look upon the profession not as a science but as something cheap and of free service; then he directed his attentions along some other line of education.

After the war came a decrease in price of all farm products and all livestock included. No doubt that farmer boys who may have been veterinary inclined and would have taken the course were forced to work for a living or to save the farm from the mortgage, this had its influence.

Last, but by no means least, the B. A. I. salaries are far too low, and discourage young men from giving four years of their time and a considerable amount of money to earn a salary equal to that of a rural mail carrier who needs no college education. This had and still has its influence.

All these factors must be taken into consideration before the cause of poor attendance at veterinary colleges can be placed.

Higher educational standards, both fundamental and professional, are of undoubted merit, and we must keep veterinary education in accordance with all other educations, if we intend to maintain our present standing in the educational world as well as among the people where we live.

I know of no one who has too much education. Those who serve their clients best are those who have best prepared themselves to serve their clients well. The present entrance requirements are satisfactory in every way to me, but I confess that the present requirements for graduation are unsatisfactory. I would raise the standard by adding a three months interne period during the junior vacation, with a qualified veterinarian, who was satisfactory to the college at which the student was attending school. This would give the student a valuable insight to the practical application of scientific veterinary education, and prepare himself to gain more knowledge from his senior studies, and enable him to give more efficient service to his clients after graduation.

There is more demand for veterinary service than ever before, but the field is well supplied at the present time. With the automobile and good roads, one veterinarian can now answer more calls in a day than he could possibly answer in a week with a horse and buggy 20 years ago. The horse and buggy is too slow now.

In all sections of the country that can support a veterinarian, the territory is well supplied and in many places there are too many veterinarians. There are sections of the country in some states that have no veterinarians. Their absence is because there is not sufficient practice in those particular localities to furnish a veterinarian a living. People who live there are unfortunately located, at least as far as veterinary services are concerned, but in those sections there is the eternal, all wise quack to give them cheap service, and frequently also a county agent to give free veterinary advice. Why lower the standard of veterinary education and inevitably lower the standard of veterinary service to give to a very small minority of people *cheap veterinary service?*

It is a fact that well qualified veterinarians, who can deliver the goods in practice can and do demand more pay for their services, than less efficient veterinarians and they are worth more to the owner of livestock. Usually one $5.00 call answered by a veterinarian who can deliver the goods is worth more to the client than ten $2.00 calls from an inefficient practitioner. For example, I was called to see a draft mare, where a registered quack had treated her for stomach trouble. The fact was she had a clear cut case of Purpura. When the mare recovered my bill was $15.50 and was gladly paid. The quack's bill for several calls was $16.00 and the owner refused to pay it. Results will bring economy. Waste is always extravagant.

My observation has been that when letters of inquiry were written to colleges for veterinarians, they wanted educated men. I meet with all classes of farmers, those without education and those with a college education, and I believe that 100% of educated farmers (I do not necessarily mean wealthy farmers) are pleased with services of high class veterinarians. Sometimes we hear grumbling and dissatisfied remarks from the uneducated and unappreciative men, but why be satisfied with a cheap education to satisfy

cheap clients, who do not appreciate good services?

Veterinarians whom I know that have built up extensive practices are men who are proficient in education and are able to apply their scientific knowledge to the cases with which they come in contact. They charge a sufficient amount for their services to pay them well but *few farmers object to paying for value received.* In other instances I know some veterinarians who are *not* so proficient in practice, that almost invariably are cheap. They cut prices for their services, are usually hard run and always knocking on the farmer and the veterinary profession.

The veterinarian who spends six or seven hours on his knees at the business end of a farrowing sow, does not know his "eggs" and the time had better be spent seeking more light. Deans of veterinary colleges are not too good to remove the pigs from a sow or perform cesarean section, and they would charge a reasonable fee for their services, unless the client was too poor to pay the bill, then they would give their services free of charge and would go home feeling happy that they had rendered efficient services to a client.

I have an intimate acquaintance with a few deans of veterinary schools, a slight acquaintance with others and I have a very high opinion of all those I know. I have my faith grounded deeply in the dean of our state school. He is a man of high ideals as well as education and if it were necessary would take the pigs from a farrowing sow, in much less time than six hours, too.

The high cost of veterinary services does not begin to reach the tremendous loss that has existed in the past from poor veterinary service. Think what efficiency has done in the discovery of anti-hog cholera serum, swine plague bacterin, hemorrhagic septicemia bacterin for cattle, hogs, sheep, goats and chickens; Antitanic serum and dozens of other biologic preparations, who would like for the profession to retrograde? Who wants to live in 1900 when it is 1927? The nation depends largely upon scientific veterinarians to safeguard its livestock industry.

## PREFERS THE QUACK VETERINARIAN TO THE FARM AGENT

Dr. W. E. Van Allstyne's article in the September number of VETERINARY MEDICINE, relative to the small number of matriculants in the veterinary departments of our state universities, voices my sentiments almost exactly. For the past twenty years I have seen the mistake of increasing the matriculation requirements and lengthening of the study period, but haven't the nerve, or ability, to write an article such as Dr. Van Allstyne wrote. However, he failed to offer a remedy, except to shorten the course and lower the matriculation requirements.

I believe, in addition to putting the curriculum back to three years of six months each, that requiring the senior student to spend the summer months between the second and third session with a graduate practitioner, and furnish a certificate to that effect before being allowed his diploma would result in better qualified men being turned out than are under the present system. The college I graduated from in 1892 required this and I believe if it had been kept up we would have more practical men than we have today.

I believe in a high education and I don't believe in scrapping the veterinary colleges and reverting back to the old time "hoss doctor." When I graduated thirty-five years ago, there was no veterinary practice acts in Illinois and nothing to prevent any horse trader, farmer or castrator of farm animals to put out his shingle and compete with the young graduate that entered the field of practice, and while they caused me a great deal of annoyance and inconvenience at times, if it was to do over again, I would rather compete with the old time quack horse doctor than I would a set of men that the same universities, that graduates the veterinarian graduates, and turns out to compete with him, and that is the "Farm Agent."

Mobile, Ala. G. W. Browning.

## HEMORRHAGIC SEPTICEMIA OR PLANT POISONING IN CALVES

A farmer has lost five young Jersey calves, three to five months old during the last four months. They were the best calves he had. All were in fine condition. All died within ten to twelve hours after showing the first symptoms of illness. All turned the head to the flank, and were affected by champing of jaws, salivation, twitching, moving in circles, convulsions and bellowing.

All sucked cows and had run of yard around house, among flowers, vines and blue grass. Only one, the best, takes sick at a time. There is no other cattle or hog disease on this farm.—E. H. B., Mo.

**Reply:** Your question is not an easy one to answer from the information given. Of course, in calves of this age and in this conditiotn, black leg is to be thought of even though the symptoms do not fit in with the black leg picture. A similar condition in calves in one instance was found to be due to eating moldy bread. These calves, however, were weaned and belonged to a baker and were fed exclusively on stale and moldy bread soaked in skimmed milk.

The symptoms you give, fit in fairly well with rabies in cattle. "Mad itch," thought by some to be a form of hemorrhagic septicemia, is accompanied by somewhat similar symptoms. Under some conditions, calves are very susceptible to hemorrhagic septicemia.

Plant poisoning is also to be thought of as a cause of the death of your calves. Quite a number of ornamental shrubs, flowers and plants are poisonous and these calves, having the run of the yard, may be eating these plants.

The post mortem lesions should be stated before even a guess is made as to diagnosis. Hemorrhagic septicemia or plant poisoning seems the most likely guess. Now if the calves were dogs how easy the diagnosis would be—fright disease!

What appears to be the same ailment was discussed at some length at a meeting of the North Wales Division of the N. V. M. A. (British) July 20, 1927. The report published in the Veterinary Record is as follows:

### A Nervous Disease of Calves

This occurs in calves from three weeks to three months' old, usually about six weeks, and always, in my experience, in calves that are sucking the dam or that are very well done on the bucket. The farmer usually asks what was the cause of the sudden death of a calf which went quite mad. Or often a peculiar noise or yell is heard from the calf pen, and when you rush there you find either a dead calf or one dying, as is always the case, in convulsions. I happened to be in a farm once examining the teat of a cow which had a calf with her, and whilst I was with the cow the calf started to champ his jaws, his eyes bulged out, he gave a peculiar yell and then started to run round the box stark mad. In three minutes he was down and exhausted, and in another three minutes he was dead.

I have had four deaths on one farm this year, all reared on the bucket.

I have seen only one calf that has had this disease continue to live. In this case the animal was totally blind for life, and was for a whole week unable to stand. What can cause the death of these calves so suddenly? That it acts on the brain I am certain. Is it some form of ptomaine poisoning or cerebral hemorrhage, or what? I have made a post-mortem examination on three or four cases. The organs all appeared normal, as far as I could judge, except the brain, and all I could see there was congestion of the meninges, but no clots. On some pedigree farms it is a serious matter, and I have tried many things as preventatives. What I have found most successful is a dose of castor oil three times a week, but as I am totally in the dark as to the cause it is difficult to prescribe. I tried luminal soda on one farm in 5 grain doses three times a week, but I lost two cases there again.—G. J. Roberts, F. R. C. V. S.

In the discussion that followed several of the veterinarians present spoke of hav-

ing had experience with this ailment in calves. The consensus of opinion seemed to be that the ailment is a form of epileptic fit due to gastro-intestinal irritation—foreign bodies and indigestible (for calves) forage having been found at autopsies.

## MASTITIS OFTEN CONTROLLED BY AUTOGENOUS BACTERINS

One of my clients has a pure-bred Guernsey cow that is troubled very much with what is seemingly a periodic mastitis. One quarter of her udder will become hot and painful and upon stripping this quarter, the owner tells me there seems to be curdled milk which lasts for a few days. Then almost spontaneously, it disappears, to recur in a few days in one of the other quarters.

I have not seen this case, but he has been to the office several times and I have given him different mastitis ointments with instructions to massage the udder thoroughly and to use warm water fomentations. This cow is six years old and has been troubled in this way for more than a year. She freshened last about six months ago.

Can you suggest some internal treatment that may be beneficial to this cow, or is there any other way to treat this case that we may effect permanent relief. —L. P. M., Ohio.

**Reply:** The type of mastitis you have described is invariably the result of infection. The exact type of the infection should be ascertained. It is advisable to obtain a sample of the milk from the infected quarters and send it to some reliable laboratory and have a careful bacteriological examination made. Most of these cases are the result of infection of either streptococci or staphylococci or both; sometimes they are due to a colon bacillus infection. The most severe cases are the result of staphylocci infection.

In many instances these cases can be controlled by an autogenous bacterin made from the organism isolated from the milk cultures.—A. T. K.

## REVACCINATION NOT NECESSARY

On July 31st, 1926, I vaccinated a herd of 144 pigs weighing about 40 pounds each, with a certain serial of serum and virus. The same day I vaccinated 145 other pigs, in three different herds, with the same serial of serum and virus. On July 30th I had vaccinated 295 pigs in four different herds with the same serial of serum and virus.

Twenty-four days after this herd of 144 was vaccinated I left town for a vacation. Twenty-eight days after vaccination seven of these pigs sickened. I was out of town and the owner became worried and took one of them to my competitor and asked him to make a diagnosis. He called it cholera and suggested that he revaccinate them at once. The owner having had little experience with vaccination did as he suggested and the second vaccination bill was a whopper.

The owner and I are good friends and he has been very reasonable about it in every respect. We are just wondering if this was a case of cholera or just a job of revaccination that was pulled on him while I was away. Would not this be too late for a serum break and too early for a virus break? In other words if the serum was at fault would not these hogs have sickened before, and if the virus was impotent would they not still have been immune from the serum?

One of the men having hogs that were vaccinated the same day as the herd of 144, had a hog die a few days later. This dead pig was taken to the same veterinarian who called it a case of cholera and advised revaccination at once. This man didn't revaccinate and no more died. There was no trouble of any kind in the other lots vaccinated.

In your opinion did these hogs that died actually have cholera?—A. E. N., Iowa.

**Reply:** It is noted that the same serial of serum and virus was used in the different herds and that there were seven pigs sickened 28 days after vaccination in one herd and that there was one pig

died in another herd that had been vaccinated. Further a veterinarian examined one of the pigs from the herd in which seven pigs sickened after vaccination, diagnosed the condition cholera and revaccinated the herd. The question is was this condition cholera?

Cholera following vaccination with serum and virus may be due to impotent serum or avirulent virus. Cholera breaks due to impotent serum occur about ten days after vaccination and those due to avirulent virus rarely occur before 30 days after vaccination and most frequently not until 40 or 50 days after vaccination. The fact that you vaccinated three different herds the same day with the same serial of serum and virus and four herds the day before, without any losses is sufficient evidence that the serum and virus were not at fault. The evidence seems conclusive that it was not cholera. In this consideration is given to the chances of error in making a diagnosis of hog cholera from the autopsy of a single animal and with little history of the case.

It is generally conceded that serum and virus are reliable products and it has been found that the principal losses of swine after vaccination is the result of other disease than cholera.—A. T. K.

## THE CATS HAD FITS

The wife of a veterinary officer at Ft. Robinson, Nebraska, noted that her cats ate a weed growing in the yard and immediately "had fits." We were undecided whether the cat was ailing and ate the weed incidentally or whether the weed was toxic. A specimen was sent to Dr. L. H. Pammel of Iowa State College, a recognized authority on poisonous plants, who replied as follows:

"The plant sent for identification is a member of the soapberry family (*Xanthocaras sorbifolia.*), a plant closely related to the balloon vine, paullinia, the horse chestnut, buckeye, soapberry, litchi and northern bladder nut. They are plants of wide distribution. Some of them are of economic importance, as for instance, the litchi, the fruit of which is used. Many are frequently planted for ornamental purposes and some are quite toxic. The item you sent, therefore, is of interest to me.

*Sapindus marginatus,* the soapberry tree of the south, is suspected of being poisonous. I published a note on its poisonous character in VETERINARY MEDICINE some years ago. The fruit of *Sapindus saponaria,* one of the exotic species, contains a great deal of saponin which is used as a substitute for soap where the plant is native. All plants containing saponin are poisonous. There is no question, therefore, with the evidence at hand, that the plant *Xanthoceras sorbifolia* is more or less toxic. Saponin acts on the red blood corpuscles, causing their dissolution and for that reason is toxic. The degree of toxicity depends upon the amount of saponin in the plant."

## SKIN AFFECTION IN A DOG

I would appreciate some information on the following case.

An Airedale bitch, spayed, two-year-old, is suffering from an ailment affecting the ventral surface of the abdomen and inside the hind legs. It begins with reddening of the skin and formation of pustules, which heal leaving depigmented areas upon which the hair does not grow well. The disease seems to be spreading over the flanks and costal surface. This female was vaccinated with Parke, Davis & Company's canine distemper vaccine (two doses). This breaking out was not noticed until after vaccination. Is it possible that this is a vaccine rash?

Intense pruritis is a prominent symptom of this case. The condition has grown gradually worse for six months.—H. H. H., Ontario.

**Reply:** Conditions such as mentioned may be due to so many different things that my advice is to make a scraping of pustules and pull out some hairs, and make a section of an affected area for laboratory examination. This is what we do on all skin cases. It is a lot of work at the time, but well worth it. A case we had recently that was somewhat

similar proved to be a severe inflammation of the skin, showing a bacterial infection at the hair follicles, this dog was placed on Blaud's pills, given a well-balanced meat diet, with a fairly high fat ratio to prevent constipation. The hair was clipped and dog bathed every day in a liquor cresolis compositus solution, one tablespoonful to the gallon of bath water, and a 2 per cent mercuric potassium iodid soap was used. There was a complete recovery in three weeks. We see no reason for attributing the condition to the vaccination of the dog.—J. G. H.

## THE USE OF VIRIUS IN INFECTED HOGS

When vaccinating in an affected herd, if one finds hogs with an elevation of the temperature, should virus be given? If so, should the dose be reduced? On the other hand, should one find some visibly sick and decide to vaccinate the sick ones, should he give virus to those that are visibly sick?

If he gives only serum, will the hogs that have a high temperature and are visibly sick, acquire an active immunity?—H. T. C., W. Va.

**Reply:** In vaccinating swine with serum and virus it is always advisable to ascertain the temperature of at least a sufficient number of the hogs to know whether or not the herd is infected. The principal reason for ascertaining the temperature is to forecast the outcome. In other words, there should be practically no loss in herds that are healthy when vaccinated, but if the herd is diseased, a loss should be expected and the owner so informed.

Hogs in the incubative stages of cholera, showing a high temperature are probably not injured by giving a full dose of virus. It is generally conceded that a serum immunity is of relatively short duration. A positive immunity will follow the injection of serum into a hog affected with cholera excepting in those cases where infection is sufficient to destroy the hog.—A. T. K.

## MINERAL DEFICIENCY IN A PASTURE

The following described condition in swine reported by a client will no doubt be of interest and any information relative to cause and treatment will be appreciated. The affected swine eat and drink and are apparently normal excepting that when they first start to walk, they drop down in the back once or several times then after limbering up go about their feeding as usual. The owner said they acted like an old man with a "crick" in his back. The hind legs did not give way as is common but the pig drops down in the middle until his belly would touch the ground. These shoats are thrifty and doing well, did not see them but some years ago saw a bunch in north Texas that acted just as he describes these. The Texas shoats had recently been turned out on a pasture that contained every kind of weed in Texas with a little buffalo and gramma grass and I attributed the trouble in that case to plant poisoning but these pigs have good alfalfa pasture and plenty of running water.—L. F., Kansas.

**Reply:** I have not observed the condition that you describe and although these shotes run on alfalfa pasture and are supplied with running water it seems probable that the condition is the result of a dietary deficiency, and adding to the feed a mineral mixture containing calcium and phosphorus seems advisable, until something more definite as to cause can be ascertained. The fact that there are certain areas (notably in Wisconsin) where the forage is deficient in certain mineral elements necessary in the feed of live stock, particularly in phosphorus, would seem to justify the addition of minerals to the feed in this case while the cause of the trouble is being investigated.

VETERINARY MEDICINE will be glad to have reports from other practitioners that have this condition in swine and will be pleased to publish any information relative to cause and treatment.—A. T. K.

## EPITHELIOMA OF THE EYE INOPERABLE

I would appreciate some information on a case of epithelioma of the membrane nictitans in an eight-year-old mare. The entire surface of the conjunctival membrane is involved. The tumor covers nearly the whole eye and under surface of the lids. There is a very fetid discharge and much pain.

I have had no success in attempted ablation of two similar cases treated recently, and shall appreciate any information regarding medical treatment. Do you advise ablation?—H. H. H., Ontario.

**Reply:** Epithelioma that apparently involves the membrana nictitans and conjunctiva are rarely successfully removed because of invasion of adjacent structures. If the cases are observed in their early development before the tumorous mass has penetrated the deeper structures of the eye an ablation is usually successful.

We do not believe that there is any medication that will be of value in the case you describe.

## EPIZOOTIC PROLAPSE OF VAGINA IN GILTS

About five weeks ago, I was called to treat pigs about four months old. The female pigs have prolapsus vaginae and it seems to be contagious. The male pigs are not affected. These pigs have good appetites, are thrifty and normal temperatures.

Those most seriously affected are no better now than when I first saw them five weeks ago. There are from forty to fifty in the herd. The mature sows are not affected. Fall pigs now being produced from the same mothers have developed this same trouble when twelve hours old. The shoats have been fed corn and are on good clover and have had Vitamineral at intervals.

What is the cause and the remedy?—W. E. McA., Ohio.

**Reply:** In herds that have been investigated by the writer, no definite cause has been found that would account for the condition. I have been inclined to believe that it was possibly of dietary origin and in several instances fasting of the affected animals for twelve to eighteen hours, followed by saline purgative has apparently given beneficial results. In other instances, it has been necessary to use sutures after the prolapse had been reduced.

You may find a short discussion of this ailment on page 428 of the October issue of VETERINARY MEDICINE.—A. T. K.

## LIVESTOCK FED BY RED CROSS DURING MISSISSIPPI FLOOD RELIEF

While the American Red Cross cared for more than half a million humans made destitute by the Mississippi flood, these were not the only sufferers resulting from that calamity. Hundreds of thousands of animals also were affected.

In the course of the relief task necessitated by the flood, the Red Cross fed more than 200,000 head of livestock rescued along with their owners from the devastation. At the LaFayette, La., camp, the Red Cross cared for 30,000 head of cattle. Similar large herds were sheltered and fed at other points in the flood area.

Many thousands of animals were lost in the flood, approximately 60,000 carcasses having been counted at one period. When farmers were fortunate enough to save their cows, horses and mules, the Red Cross fed them during the emergency, then when the farmer left the refugee camp to return to his farm, his stock was sent along too. In case the farmer had lost essential farm animals and could not himself replace them, the Red Cross supplied new ones such as work animals and milk cows.

The Mississippi flood was the biggest disaster ever to claim the service of the Red Cross in peace times at home. While directing relief in this region, the organization also was administering relief in twelve other calamities in other parts of the country.

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Disaster relief is one of the outstanding services of the Red Cross, for which it asks each year the support of the public through membership. Join during the Roll Call, November 11-24.

## NECROTIC ENTERITIS ACUTE SUBACUTE AND CHRONIC

A fifty pound pig autopsied three hours after death showed purple discoloration of skin on venter surface of body from the snout to the hind legs. The intestine was discolored on the serous surface, and there were numerous areas of erosion on the mucous surface and many so-called button ulcers. The liver had a bluish cast. The spleen was enormously enlarged and dark in color.

The condition was diagnosed infectious necrotic enteritis. Will be glad to have your opinion on the diagnosis and also suggestions as to treatment.—L. K., So. Dakota.

**Reply:** You have given a concise description of a condition resulting from infection with the B. suipestifer. The condition resulting from infection with this micro-organism may be acute, subacute or chronic. The acute condition is manifested by a high temperature, purple discoloration of the skin, usually frequent urination, and death in 24 to 48 hours. The lesions characterizing the acute form of this malady consist of purple discoloration of the skin, nephritis and tumefaction of the spleen.

The subacute form of the malady is usually manifested by fever, some skin discoloration and diarrhea. The lesions consist of enteritis and some tumefaction of the spleen.

The chronic type of the malady is manifested by emaciation and diarrhea. The lesions are usually confined to the intestinal mucosa and consists of an inflammation characterized by accumulation of exudate upon the surface of the mucosa. The spleen is rarely involved. In this type of the disease there may be a secondary infection with the B. necrophorus in the deeper layers of the accumulated exudate.

The following methods are suggested for the control and treatment of infectious necrotic enteritis in swine.

First, it is advisable to immunize healthy herds particularly those that are on premises where enteritis previously prevailed, by the use of one or preferably two doses of enteritis bacterin. In such herds enteritis bacterin made from pure cultures of B. suipestifer can be given in conjunction with serum and virus.

Second, in diseased herds give one injection of enteritis bacterin and separate the apparently healthy hogs from those that are visibly sick, placing the healthy hogs in new lots if possible. Withhold feed and water from the visibly sick hogs for 12 to 18 hours and then give them either Glauber's or Epsom's salts in water to purge them freely. Then provide the sick pigs with a liquid diet, preferably soaked oats. In preparing the soaked oats or liquid diet, use one pound of caustic soda or lye to every 20 to 30 gallons of water, using this as the soaking fluid. To this solution there may be added an antiseptic or copper sulphate, if you so desire. Five days after the first injection of bacterin repeat giving a slightly increased dosage. Keep the sick pigs on the liquid diet until they are apparently normal.

Third, it is not advisable to give anti-hog cholera serum and virus in herds in which enteritis is prevalent until the enteritis has been controlled.—A. T. K.

## HOW RID DOGS OF PARASITES

What is the best vermicide for removing round and tape worms from a young Fox terrier? Have young puppies, two months old, vomiting round worms four inches long. What will drive fleas off a dog? How often should a dog be fed?—E. H. B., Mo.

**Reply:** So much has been published in VETERINARY MEDICINE concerning anthelmintics for dogs there is nothing to add to it at this time. The best treatment for round worms such as you mention, is probably tetrachlorethelene. Give 0.2 cc. per kilogram weight of the dog. That is, give one dram for a 22 pound dog. This agent is as effective as carbon tetrachlorid and the margin of safety is much

greater. Do not give a purgative following tetrachlorethelene.

Arecolin hydrobromid is the most generally successful agent for the removal of tape worms. You do not mention the breed of your puppies, so the size of dose cannot well be given. Give it by the mouth. No other purgative is necessary.

Bathing, antiseptic sprays and pyrethrum powder are effective agents for ridding dogs of fleas. The fleas will, of course, reinfest your dog if they are not eliminated from its sleeping quarters.

In the August and September issues of VETERINARY MEDICINE are six articles on feeding dogs, which see.

## "FRIGHT DISEASE"

The various veterinary journals have recently published articles in which "fright disease" is classed in that all-embracing mystery "deficiency disease," and the cause is laid to a dearth of fresh meat in the diet.

This may, or may not, be the true cause. One wonders.

The writer endeavored to see what he could see, and while it is realized that one cannot generalize from one case, and that a single incident is not conclusive, yet the following case report is submitted for what it may be worth, if anything.

In October, 1925, the writer was presented with a Boston bull of proud and ancient lineage, age one month. True "Mayflower" corpuscles flowed freely in his circulatory system, and he appeared to be well endowed for life's vicissitudes. It was early determined that this pup should be a model of all canine virtues, and that his diet and general management would be as near to "Hoyle" as possible.

For the first month, or until the pup was about two months old, the diet consisted largely of good whole milk, with small quantities of finely shredded meat. From the age of two months on, the diet was beef boiled with rice, whole milk, raw beef in the form of hamburger, and bones for the benefit of his teeth, or anything else that appeared to need benefitting. Feed was given regularly three times daily, and the dog was so handled that it is reasonably certain that he did no foraging on the side.

His general health was watched with anxious solicitude, and all that loving hearts and hands could do was carried out. He was never allowed to indulge himself in any of the various intestinal star boarders, to which dogs often become so attached; he was vaccinated against rabies and canine distemper; he was bathed without mercy; he was exercised on a leash, and was never allowed to demean himself by association with common garden varieties of dogs.

All went well, and "Bosco" continued in perfect and effulgent health. He was proudly cited by the writer as a shining example of what careful scientific care could accomplish in the rearing of an orphan dog. This state of well-being continued until the age of eight months, then, alas for human hopes and cherished ambitions, we are but subject to bitter disillusionment!

The owner was sitting on his porch calmly enjoying the peace and beauty of the evening, Bosco sat peacefully at his side, reflectively scratching a flea which appeared to be a victim of insomnia, and all was well.

Suddenly, and without the slightest warning, the solemn hush of eventide was rent with a wild and anguished canine yell, and Bosco was "off."

He proceeded rapidly and methodically and with strict attention to detail to put on the picture of "fright disease" in its most violent form. He ran violently until he hit something large enough to stop him, he howled, and screamed, he jumped high and often, he foamed at the mouth, his eyes were dilated, and the hackles stood erect. He went through the writer's quarters like an angel of death, and was finally secured under the bath tub. He was tied, and a start was made to take him to the hospital, but death relieved poor Bosco, before the hospital was reached. The time from the

very first symptom until death could not have been over 20 minutes, and there was never a preceding attack.

If this was a deficiency disease, then deficiency is as sudden and fatal as strychnin poisoning. However, a meat deficiency cannot be established in this case, since meat in two forms, cooked and raw, formed a regular part of the diet. If this condition was a manifestation of distemper, as has been claimed, then distemper is becoming entirely too precipitate for comfort, and will have to be treated on the run.

The writer has seen and treated many cases of this condition, some have completely recovered, and others have died, and it is the writer's opinion that no true explanation of the cause has yet been given.—Capt. Elwood L. Nye in the Army *Veterinary Bulletin.*

## AN IMPROVED WHITE LINIMENT

After some years of experimentation, the following formula for a white liniment, has proved the most satisfactory the writer has ever used. This liniment will not separate or become too thick in cold weather. When made according to "Hoyle" it will remain a beautiful pink liquid, smooth as cream, and with analgesic properties that render it valuable in mastitis, bruises, etc. Here is how it is made:

1. In a gallon bottle, pour in two ounces stronger ammonia. Add a pint of warm water, and shake well.

2. Add two ounces oleic acid; another pint of warm water, and shake.

3. Dissolve four level tablespoonfuls ammonium chlorid in a pint of warm water, add to above, and shake well. Add a teaspoonful aqueous red color.

4. Add two ounces methyl salicylate; another pint of warm water, and agitate as before.

5. Add twelve ounces oleum terebinthae, to which one dram red oil color has been mixed. Fill up bottle with warm water, and shake the whole gallon well.

Set in the kitchen where it will keep reasonably warm, and shake every day for a week. By this time it will have "ripened," and have turned into a beautiful pink liniment.

As I use several gallons a month, I have three bottles going all the time; one ready for use; one freshly made and one ripening. After it reaches the final stage heat or cold seems to have no effect on it. Of course, at twenty below it will freeze.

The fact that it can be made up for a very small sum may not appeal to the average practitioner, but it does to me.

Moscow, Idaho. E. T. Baker.

## ANIMAL HOSPITAL DE LUXE

The hospital of the American Society for the Prevention of Cruelty to Animals, New York City, contains individual accommodations for four hundred dogs. It has a distemper ward, medical ward, surgical ward, observation ward, skin diseases ward, washing and drying rooms, clipping rooms, bird room, cat ward, outdoor runs, a morgue with refrigerating plant, five operating rooms, residential quarters for four veterinarians, kitchens, ambulance garage and offices.

In the cat ward are 32 individual cat kennels. In the medical ward 160 dogs can be accommodated, 175 in the distemper ward, 16 in the surgical ward, 32 in the observation ward. All the rooms have tiled floors and are tiled to a height of about five-and-a-half feet.

The morgue contains receptacles for 41 dead dogs and refrigeration to keep the bodies for at least five days and until the owner can be summoned.

Anticipating the development of the borough of Queens, the society plans to put a complete modern plant, shelter, office and garage, at Winfield, Long Island. The new shelter is expected to become not only the largest plant of the society, but the most modern plant of its kind in the world. With its completion, the society will have a fully equipped plant in each of the five boroughs, Manhattan, Bronx, Brooklyn, Richmond and Queens.

The new shelter will have all modern equipment, with several motor ambulances, and complete office force with all-night telephone service.

## LOSS OF PREGNANT EWES FROM LACK OF EXERCISE

I have read with interest the several articles you have had in your columns in the last few issues by Dr. E. T. Baker on the subject of pre-parturient paralysis in ewes or in other words, stercoremia. I agree with Dr. Baker's method of handling these cases and his line of treatment or as we would say, he just uses common sense and an everyday line of treatment.

Dr. E. E. Clore's article in the September issue on a mineral ration for ewes before lambing time to remedy this condition, I don't entirely agree with. I think minerals alone will not help matters any. I have seen, and have had to treat a great number of these cases here in South Dakota and in both large and small bands of sheep and as this last spring was a banner year for it, I, like Dr. Baker, saw plenty of the condition and also had plenty of work for the "strong hired man with a good shovel" that Dr. Baker speaks of in one of his articles. Some of my most interesting cases were in small bands of pure breds that had been fed on a balanced ration, so I cannot agree with Dr. Clore as to the cause of this condition in ewes.

My first calls to stricken ewes from the equally though differently stricken owners started to come in to me during the latter part of March and continued through the month of April, which was during a rainy spell in this part of the state. This rainy spell was one of the reasons that we saw so much of this condition in ewes this last spring, for the reason that they were penned up on account of the bad weather and kept from their regular exercise in the open. To supplement my argument on feeding, I will describe two of my cases to give a general view of the makeup of these cases.

Case No. 1. I called early one morning in the latter part of March to find out the trouble that Farmer Brown, on a small farm close to our town, was having with some sheep. On my arrival I found he had only ten ewes which he kept about the place to clean up, as he put it. He had lost one and had two down in real paralysis with all its symptoms. These sheep had been fed alfalfa hay, good oats, ground barley, a good brand of mineral feed and some sheep tonic stock powder, so you see he had it all as a matter of fact, he loved his sheep (pure-bred Shropshires). These ewes were from one to three years old and had never been used to any range at all except around the barnyard. On autopsying the dead ewe, I found all the lesions of stercoremia, the line of treatment for the rest was laxatives, tonics, exercise and the results were that the two that were down passed over the dark river to sheep heaven and the rest got well and lambed, with the exception of one, which aborted her lamb a few days after treatment.

This condition had never been seen on this farm before, although sheep have been kept there for many years.

Case No. 2. I had a call one morning early in April to a ranch some forty miles from my office. Their sheep were dying and I was told to bring all the vaccine for hemorrhagic septicemia that I had, for that was what was wrong with the sheep. I tried to get some line on the outbreak but as it was only a ranch boy that was doing the calling, I could get no information, only that the ewes were dying, just taken sick over night, ten dead and a number ready to die.

This ranch was a large one and always had from one hundred to one thousand sheep on it and they had been in the sheep business for a number of years. On arriving at the ranch, I found the boys taking the pelts off the dead ewes and I guess these were the "pelters" that Dr. Baker speaks of in his articles. There were fifteen dead ewes and forty-six down looking as if they had too much "prairie dew" that use to flow in this country before prohibition came—and went in these United States. There was a band of four hundred ewes in all, some had lambed but the greater part of them were yet to lamb. They had everything ready to run the sheep through a chute to vaccinate them, and wanted to know if I had plenty of "dope" when I told them I came without it and in fact, hardly ever carried it. I got about the same kind of a look that a baseball

player gets when he "runs" without orders. We started in to post the dead sheep and all were heavy in lamb. We found the same old lesions as ever in these cases. Then I asked for some of the dead ewes that had lambed to post and this they could not supply, so the scene changed and everyone but the veterinarian was wondering why none of the ewes that had lambs at their side had died or were down. Well, these sheep had what we call out here "rustled all winter" or in other words, were let run all over about two thousand acres of land for their feed during the winter and spring, were fed some prairie hay and pigeon grass, no grain and no mineral of any kind. In fact these sheep were real rustlers, *but* this is where the villain enters. They had been kept up in the sheds and barn for the past week or ten days; it had been raining and the weather was bad and the rancher wanted them to have a dry place to lamb. After a lot of talking and explaining, the light was seen on the whole mess as one of the boys put it, and we started in dosing the sick ones first, giving each one a good stimulant and one pint of mineral oil and the balance of the band that had not lambed yet were ordered out of the feed lot to rustle as usual and all were given a laxative. Three days later, I was back at the same ranch and found that one of the ewes that were down had died and the remainder got up the next morning and went out with the herd. Of these, a few more died in the next day or so, and a number aborted their lambs, and that was all the loss they had. Most of the ewes lambed in a week or so after the trouble stopped.

These are just two cases of a considerable number that I had last spring. All were about the same as to feeding and keep and I laid most of the loss to the wet spring and not enough exercise for the ewes. I wanted to state my views in this condition so some of the other practitioners could check up on them and be helped if they ever come in contact with this condition. You may find the condition even where there is the best attention paid to feeding.

Aberdeen, S. Dak. G. P. McCue.

## MY FAVORITE BOTANIC DRUGS IN CANINE PRACTICE

I will give these drugs alphabetically and, where not otherwise mentioned, fluid extract or specific medicine is used.

Aesculus (buckeye): A stimulant to the nervous system in some cases of paralysis; useful also in cases of hemorrhoids. The best remedy to remove pin worms from the rectum.

Ailanthus (Chinese sumach): A nerve tonic in asthma, epilepsy and fright disease. It is also one of the best internal antiseptics, being in a class with baptisia and echinacea as antiseptics in cases of blood deprivation. I have found it an excellent remedy in black tongue. It is one of our best anthelmintics, especially for tape worm and hook worm. It constitutes the base of my red worm tablet.

Apocynum (dog fane): In nearly all cases of dropsy, combined with acetate potash it makes a sovereign remedy.

Avena sativa (oats): A nerve tonic, stimulant and antispasmodic.

Barosma (buchu): A stimulant and alternative to the mucous membranes of the genito-urinary organs, in all subacute or chronic cases of pyelitis or cystitis.

Bryonia: An anti-rheumatic in diseases of the serous membranes; in pleurisy and pneumonia.

Balmony (chelone glabra, snake head): A tonic laxative and anthelmintic, this is the best remedy for round worms in puppies if combined with a small amount of podophyllin or leptandrin. It is the base of my pink worm tablet for puppies.

Cascara (Rhamnus purshiana): Useful to overcome habitual constipation, due to torpor of the bowels. Should be used as a laxative, and not as an active cathartic.

Chionanthus (snowdrop): A remedy for jaundice and as a stimulant to the liver, preventing gall stone formation.

Colocynth: Useful in diseases of the intestinal tract with spasmodic constrictive pain, and tenesmus. One of the best remedies for gastralgia in puppies, where they are continually yelping from pain. The following combination, with dioscorrea and

tincture lavender compound, makes a good prescription:

℞ F. E. Colocynth m xv
Dioscorea ʒ i
Tinct. lavender comp. ʒ ii
Aqua q. s. ad ℥ iv

M. Sig. Give one teaspoonful every hour till relieved; in very serious cases give every half hour.

Crataegus (English hawthorn): A tonic to the heart and blood vessels; it is adapted to both functional and organic heart disorders characterized by pain.

Dioscorea: (wild yam): A remedy for bilious colic, to relieve abdominal irritation.

Echinacea: An alterative of great value in all blood dyscrasias (old sores and wounds). A powerful antiseptic, locally and internally. Of late years I have used iodized echafolta locally.

Eucalyptus: A stimulant to diseased mucus tissues, as in all chronic catarrhal affections. I use it as an external antiseptic more than I do internally.

Gelsemium (yellow jasmine): For hysteria, ecampsia and cerebro-spinal meningitis. If the fever is very high it can be combined with veratrum to a good advantage.

Juglans (white walnut): A laxative and, in large doses, a cathartic. This is a remedy of the greatest importance in the treatment of many skin troubles. It exerts a very marked influence upon this class of affections, either in the acute or chronic stage.

Kamala: A taeniafuge; it produces purgation, large doses causing griping and emesis. To prevent this combine with aqua sinnamon.

Lobelia (Indian tobacco): In minute doses, a vascular stimulant; in large doses, an emetic. Favors dilatation of the cervex in parturition and is a specific for rigid os. Its alkaloid lobelin sulphate given hypodermically acts quicker and is the part used in emergency cases.

Pinus Canadensis: Useful in colds, coughs and catarrhal affections; urinary obstructions, gastric irritation, with vomiting, diarrhea; in asthenic conditions, with impaired digestion, and paleness of mucous surfaces.

℞ Specific Medicine Pinus Canadensis ʒ i
Water
Glycerin aa ℥ ii

M. Sig. Give one teaspoonful every one or two hours.

I frequently use a ten per cent solution of pinus canadensis in water in irrigating the vagina and uterus of bitches with leucorrhea or any ichorous discharge from these organs. I like it better than permanganate of potash or the flavins.

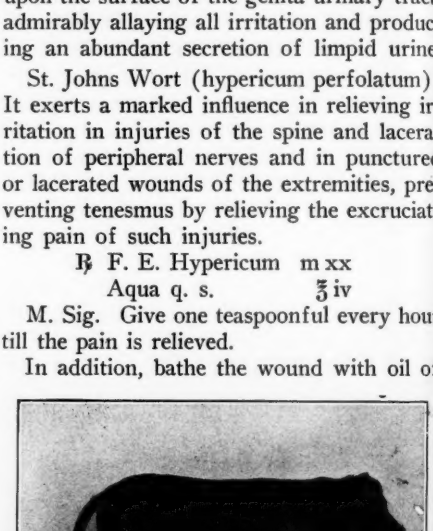
Piper Methysticum (kava kava): A prodigious appetizer; it also acts specifically upon the surface of the genita urinary tract, admirably allaying all irritation and producing an abundant secretion of limpid urine.

St. Johns Wort (hypericum perfolatum): It exerts a marked influence in relieving irritation in injuries of the spine and laceration of peripheral nerves and in punctured or lacerated wounds of the extremities, preventing tenesmus by relieving the excruciating pain of such injuries.

℞ F. E. Hypericum m xx
Aqua q. s. ℥ iv

M. Sig. Give one teaspoonful every hour till the pain is relieved.

In addition, bathe the wound with oil of



**Tetanus**

hypericum three times a day. Give the animal a good physic and you will not need to use tetanus antitoxin.

G. W. Browning.

Mobile, Ala.

# Non-Specific Intestinal Disorders of Chicks

By F. D. PATTERSON, JR., Auburn, Ala.
Department of Veterinary Medicine, Alabama Polytechnic Institute

As a profession we often overlook many important factors concerned in chick losses in our efforts to diagnose some infectious disease of a specific nature, losing sight of the many errors of mismanagement so often committed by the average poultryman. In my opinion we too frequently lay the blame on bacillary white diarrhea and coccidiosis when we are dealing with some simple factor of mismanagement. While I fully realize the importance of these two widespread, specific infectious diseases, the importance of the many other factors that are being sadly neglected by our profession, is often impressed upon me,

These other factors according to our experience cause more losses in this state (Alabama) than do the two specific infectious diseases above named. These errors of mismanagement referred to and which will be tabulated and discussed in this article also play a very prominent role as a predisposing factor in any intestinal disorder either specific or nonspecific, and are often the most important factors to be considered. To say the least mismanagement must be remedied before beneficial results of any consequence can be procured regardless of the diseased condition at hand. For these reasons it behooves us to become thoroughly acquainted with these common errors. This can be accomplished only by careful study and personal experience along the lines of poultry culture and disease control.

## Etiology

a. Weak Chicks.

1. Faulty parents. The proper selection and culling of breeding birds from a health standpoint was discussed in the September issue of this magazine.

2. Improper egg selection. This was likewise discussed in the September article referred to above.

3. Improperly incubated eggs. The veterinarian should carefully inform himself on incubation errors, for it is at this branch of the industry that many of our troubles have their source.

b. Chilling. This is a common cause of many losses predisposing to all diseases and to intestinal complaints in particular. The delicate digestive organs become chilled and in a few days intestinal disorders put in their appearance often taking a heavy toll, especially so when complicated by virulent bacterial invasion.

c. Over-heating. This produces about the same after effects as does chilling.

d. Over-crowding. This is one of the most common of all errors on poultry farms that raise chickens in large numbers under artificial brooding conditions. Few farms of this kind regardless of how capable the managers may be are free entirely from the baneful effects of overcrowding. When crowding reaches a certain point disaster usually follows, as poor sanitation goes hand in hand with over-crowded conditions and of course under such conditions all diseases are invited and if the condition is maintained for any considerable length of time, many of the invited diseases accept this invitation to the marked detriment of the host.

e. Improper Feeding.

1. Feeding too soon. Chicks should never be fed before they are 72 hours old for there is enough unabsorbed egg yolk to supply them with proper and natural nourishment for this period of time, and if food is supplied before the egg yolk is completely absorbed the digestive organs

become overtaxed and intestinal disorders generally follow.

2. Feeding too much heavy high protein mashes and not enough grain (overbalanced protein diet).

3. Feeding sloppy foods.

4. Too much carbonaceous foods, especially corn meal dough. This type of feeding is rarely met with now, and then only on poorly managed farms, and as a rule where only a few chicks are raised. On well regulated farms heavy protein mash feeding is the most common dietetic error. This latter type of feeding is inducive to rapid growth and development but often at the cost of a heavy death rate, unless unusual care and diligence is practiced.

5. Too little green food.

6. Insufficient minerals, especially calcium.

7. Mouldy and otherwise damaged feed.

f. Poor sanitation. Overcrowding, parasites, bacterial infections and many other complicating factors go hand in hand with poor sanitation. The problem is a very important one and a difficult matter with which to deal on large farms. Strict cleanliness is absolutely essential to the production of healthy birds. Valuable factors that materially aid sanitation are: Systematic cleanliness; freedom from dampness; plenty of direct sunlight; frequent spraying, but do not overdo this; rotation of pens; movable houses; good drainage; green cover crops in yards; burning all carcasses of dead birds; proper disposal of feces, and frequent turning of the soil. It would take a whole volume to exhaust this topic.

g. Bad housing. Close, poorly ventilated houses, lack of room, absence of direct sunlight, filthy accumulation, dusty floors, drafts, poor drainage and improper site for houses are errors that should always be corrected when present.

h. Bad yards. Improper soil, bad drainage, crowded yards, lack of rotation, lack of sun and shade, are points that are of far more importance than we ordinarily attach to them when handling intestinal disorders.

i. External parasites.

1. Head Lice. It takes only a few of these to kill a small chick so never overlook this etiological factor when handling hen hatched chicks or chicks that have been in contact with old birds. Head lice are inducive to intestinal troubles because they lower the chick's vitality, thus acting as a predisposing factor.

2. Fleas and mites. Fleas and mites while controlled and eradicated different from head lice, play the same predisposing role. Never overlook the possibility of their presence.

j. Intestinal parasites.

1. Large round worm (Heterakis perspicullum) found in the small intestines, probably the most important intestinal parasite found in chicks.

2. Small round worm (Heterakis papillosa) found in ceca is not of much importance, ordinarily.

3. Tape worm (Choanotaenia infunbibuliformis). This is the most common species in this section. It is found attached to the mucous membrane of the small intestine. The intermediate host is the house fly (Musca domestica). Intestinal parasites are common in this section as the climate here is particularly suited for their development. They are especially common where large flocks are kept together and rotation of runs is not practiced. The closer the confinement the more likely we are to have trouble from intestinal parasites. Rotation of yards is very important in controlling them.

k. Non-specific bacterial infection. This is a complicating factor in nearly all intestinal disorders regardless of the other predisposing and exciting causes. Their severity depends on their number and virulence and resistance of the host. B. coli is, perhaps, the most common.

### Symptoms

There are no specific symptoms by which we can determine the causes of intestinal disorders. The chick simply presents an appearance of a sick chick—a

"balled up" appearance, drooped wings, ruffled feathers, emaciation, weakness, anemia, sometimes cyanosis, irregular appetite, often complete anorexia, sometimes a ravenous appetite is present, the latter is especially noticeable in chronic types where assimilation is interfered with or nourishment deprived by intestinal parasites. On the other hand anorexia is frequently present under these conditions. Diarrhea, pasting up behind it usually encountered in a large number of the affected chicks. There is a peculiar distressed peeping and a loss of energy, lagging behind, is frequently noticed. Many become paralyzed, especially in the legs, because of weakness, toxemia and nutritional deficiency.

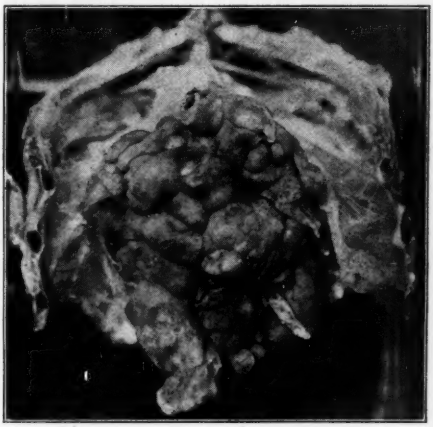
### Lesions

There are no specific lesions, enteritis being the most common. Anemic mucosa is frequently seen in chronic types and where intestinal parasites are found in damaging numbers. Necrotic areas in the liver are sometimes noticed being as a rule produced by secondary bacterial invasion. In acute types caused from feeding a too heavy protein diet acute enteritis, nephritis, and deposits of urates are found. Occasionally heart lesions are found as parenchymatous degeneration. A peculiar thick intestinal mucous is also frequently seen. In deficiency diseases such as are commonly found in chicks deprived of sufficient minerals and green foods we find whitish patches in the buccal cavity and throat often a nasal discharge that has not the disagreeable odor found in roup is present. This type is most often found in older chicks and is seldom seen in baby chicks. Necrotic areas may be found in any of the internal organs; these are generally the result of secondary bacterial invasion.

### Diagnosis

Diagnosis is made by a careful survey of the following data and using common sense combined with knowledge gained from experience in the chicken yard.

1. Have one or more affected birds sent to you.
2. Get all of the history possible. This is often a difficult task.
3. Carefully observe the clinical symptoms.
4. Kill and autopsy as many birds as you think necessary if they are available for we often have to autopsy several before definite conclusions can be arrived at.
5. Refer all specimens you think necessary to the laboratory for microscopic examination and laboratory tests. Bacillary white diarrhea and coccidiosis are differentiated from non-specific diarrheas by these means.



**Ovary of a hen showing blighted and tumefied ova due to B. pullorum infection**

### Treatment

Find the cause or causes and remove them as far as practical. We must remember that as a rule we are dealing with more than one etiological factor in every outbreak of disease of this nature, so we should make every effort practical to find all of the different factors involved.

There are a few control measures that are usually applicable to all intestinal disorders regardless of origin. Of these diet is the most important. Restrict diet feeding small amounts of chick grain by all means reducing the high concentrated protein feeds. Supply sufficient green food though in some instances it may be necessary to reduce this article for it has a tendency to produce a laxative effect,

though experience teaches us that in most instances a suitable amount should be given. Many outbreaks of intestinal disorders are traceable directly to an insufficient amount of green feed. We should also be careful that the green food given is of suitable quality. It should be grown in the presence of direct sunlight, should be fresh, tender, and succulent. Always see that sufficient and suitable minerals are supplied. Cod-liver oil is a valuable aid especially where most deficiency troubles are present. It produces more rapid results, though usually most dietary deficiencies may be controlled by a properly balanced diet in which proper green food and minerals are supplied. Buttermilk is excellent in all types of intestinal disturbances and is best supplied as the home made product.

There are some conditions that are difficult to advise beneficial treatment for the flock in question, as in such cases that are caused from feeding too early and that come from chicks that are hatched weak. Under such conditions we can at least advise our clients so that trouble from such errors can be eliminated or reduced to a minimum in the future, thus rendering him a valuable aid. Intestinal antiseptics and astringents as potassium permanganate, ipecac, catechu, etc., can be given in drinking water and may produce some benefit. When judiciously used they at least cause no harm and satisfy the client until results are obtained from other regulatory measures. Drugs as a rule are not of much value. Proper hygiene and sanitation is always valuable; when we advise our clients along these lines we can rest assured that we are giving him beneficial advice. Sick birds should be isolated as far as practical, especially so if we suspect any infectious disease is present.

### Discussion

Before concluding this article there are a few points that I would like to stress. First that the writer fully realizes that the subject matter in this article is not complete as space forbids more than a summary of the factors concerned. The purpose in writing an article of this kind is principally to call the attention of the veterinarian who is handling poultry diseases from a clinical standpoint to these simple but important factors we are neglecting. Second that the idea at present is that these factors are not veterinary problems, but they are our problems and there is no other group of workers that are as well prepared to take care of them as are members of our profession. There is no greater service that we can render the chick industry than to bring these facts before the poultry men and educate them upon the importance of reducing these common errors to a minimum.

While the handling of these factors is not a spectacular performance, we can rest assured that true service will lay an enduring foundation, that while slow of construction will outlast the rapid foundations laid upon sham spectacular performances.

Third: This article is not intended to deal with bacillary white diarrhea or coccidiosis, but at the same time the factors enumerated are of such vital importance in controlling these two important diseases it seems proper that a few remarks should be made concerning their relation to each other. The valuable work now being done in the laboratory on these two diseases should by all means be continued, for it is upon such investigation that we must depend for definite and specific methods of control. However the factors named in this article should also receive their share of attention, for they are not only of the utmost importance within themselves but their control is absolutely essential to the control of bacillary white diarrhea and coccidiosis, therefore we should give due consideration and time to these field or clinical problems taking advantage of all that the laboratory can give us. The control of the factors enumerated will always be indispensable regardless of what comes from the laboratory, and will be especially so until some more definite and specific measures are worked out.

# Tuberculosis of the Dog and Cat

Translated by J. G. HORNING, Houston, Texas

IN THE August-September issue of the Annales de Médecine Vetérinaire, published by the School of Veterinary Medicine at Brussels, Belgium, Dr. Hebrant, the Director and Dr. Antoine, a Professor at the school have a splendid article on Tuberculosis of Dogs and Cats, a free translation of which is as follows:

In 1914 the authors published a pamphlet in which great stress was laid on tuberculosis of the dog and cat on account of the close association of these animals with man. Due to this close association the dog and cat are more liable than any other animal to contract contagious diseases from man and therefore it is logical that the same diseases can be re-contracted from the dog and cat.

To prove the danger to the public of these carriers they cite statistics, in the present article of Eber at the Veterinary College of Dresden found 2.75% of the dogs and 1% of the cats that died or were autopsied had tuberculosis. The length during which this observation was carried on is not noted. Frohner at Berlin is quoted as noting the infection of 0.04% dogs and 1% cats presented at the clinics. The period during which these figures were obtained is not stated. Cadiot in 1893, noticed 40 cases in 22 months. Petit in 1905 reported to the International Congress on Tuberculosis that, in 1899, the dogs autopsied showed 4.5% and in 1905 9% of tuberculosis infection. For the period from 1910-1913 in the Pathology Department of the School at Alfort, Petit and Germain, reported that 13.5% of the dogs and 11% of the cats autopsied were infected with tuberculosis. Sendrail and Lasserre of the School of Veterinary Medicine at Toulouse found 10 cases of tuberculosis in dogs in 1,430 animals examined. Hebrant and Antoine cite further figures stating that from 1923 to 1926, inclusive, of 128 dogs autopsied by themselves, six were tubercular or 4.68%; of 108 cats autopsied, 18 were tubercular, 16.66%. From 1922 to 1926, of 3,228 cats presented at their clinic 155, 4.78% were tubercular and for the same period, of 15,733 dogs presented at the clinic, 63 were tubercular or 0.4%. Comparing these figures with the number of cases of lyssa and suspected cases of lyssa which were 40 for the same period, they state that there is more danger from tuberculosis in dogs and cats than there is from rabies. The source of tuberculosis in the dog and cat can be traced to the food, as beef and milk, the same danger that exists for man, which the present regulations of food laws makes very slight. However, it is undeniable that the contagion in nine cases out of ten has been traced to human origin; since in the case in which it was possible to make a thorough investigation of infected dogs or cats it proved to be the dog or cat of persons who were themselves infected with the disease. Cadiot reported that out of 40 cases investigated, nine belonged to restaurant or cafe owners and the remaining to private individuals who were tubercular.

The inhaling of dust from contaminated quarters and public places makes it possible to contract tuberculosis through the respiratory tract but it is through the digestive organs that dogs are more frequently infected. Because of the carelessness of their owner or some individual (in the home) that is infected with this dreaded disease and the bad and dangerous habit that these animals have of licking up the sputum from the floor is the reason why a large percentage of dogs and cats show the disease more marked in the digestive tract.

The symptoms are the same as for bronchitis, pneumonia, and pleurisy; short breathing, cough, discharge from the nostrils and eyes and temperature from one to two de-

grees above normal. These symptoms are easily noticed. Especially in cats where respiratory diseases are rare. In dogs it is different, as in the abdominal tuberculosis growths are liable to be formed in the intestinal tract resembling enlarged glands, or intestinal ulcers are also noticed. Skin lesions, white in color and running a serum like discharge, are noticed mostly in the region of the throat. Tubercular affections of the bones have also been noticed at Brussels, this resembles infantile paralysis in humans, relief has been given by the administration of anti-tuberculosis serum, although the cases of a complete cure are exceedingly rare. In fact, the danger of possibly propagating the disease is so great that application has been made to the Department of Health and Hygiene for permission for veterinarians to destroy a dog or cat when it has been proved that the animal is infected with tuberculosis.

Translator's note: The statistics and figures cover conditions in France, Germany and Belgium, however, there is plenty of food for thought for all veterinarians that treat dogs and cats. Great credit is due Drs. Hebrant and Antoine for the labor and time they must have spent in gathering the material for this excellent article.—J. G. H.

## AGGRESSINS

The veterinary biologics popularly termed aggressins are frequently classified into two groups, viz., natural aggressins and artificial or cultural aggressins.

Natural aggressins occur in the inflammatory exudates from infective processes. They are produced commercially by subjecting susceptible animals to a fatal artificial infection with cultures or other causal agent of certain specific diseases. Soon after the animal has succumbed to the artificial infection and oedematous juices are collected and all affected tissues are excised and pressed until all the liquid has been obtained. This is suitably preserved and filtered until free of all living organisms or germs. Blackleg aggressin, hemorrhagic septicemia aggressin and anthrax aggressin are examples of natural aggressins.

Blackleg filtrate is the only veterinary biologic now in use which is regarded as an artificial or cultural aggressin. It is prepared by cultivating as an artificial or cultural aggressin. It is prepared by cultivating the blackleg organism in a specially prepared media for a period until the maximum growth is obtained and until the liquid becomes thoroughly charged with the products of the germs and of their action on the meat contained in the media. The liquid is then suitably preserved and filtered free of all living organisms or germs as in the cast of natural aggressins. "Blackleg filtrate," therefore, is an aggressin obtained from laboratory cultures and "blackleg aggressin" is the filtrate obtained from affected animal tissues.

The nature of aggressins is not fully understood. However, there is strong evidence to show that they may be endotoxins liberated by the breaking up of the micro-organisms. They belong to the group of biologics which produce an active immunity or a type of immunity which does not develop until several days after inoculation. The period following treatment with an aggressin or germ free exudate before immunity is established is rather indefinite, but as a rule, it requires from ten days to two weeks. During this period treated animals are highly sensitive or susceptible to diseases caused by organisms or germs of the same species as those used in the preparation of the aggressins with which treated, and if exposed to a natural or an artificial infection will die as though untreated. If an infected animal is treated with an aggressin prepared by the use of organisms or germs of the same species as those causing the infection, the causal agent will rapidly multiply and complete for that animal the course of an acute natural infection.

Aggressins possess no curative value and their use is indicated only in those cases where the animal is in normal health and will not be exposed to a natural or an artificial infection for from ten days to two weeks after treatment.—F. A. Imler in *The Bureau Veterinarian.*

# Veterinary Advertising*

By CHAS. D. FOLSE, Kansas City, Kan.

WE ARE living in an age of advertising. Every conceivable device is being utilized to attract the public attention, create a desire, and bring about a purchase. In the smallest backwoods paper or the widest circulated magazine, the reader is confronted with a preponderous magnitude of advertising copy. In his mail he receives daily numerous and expensively prepared circulars. Along the highways and byways he is hedged in by elaborate posters and signboards. Over his radio, the program is interrupted continuously to present some advertising scheme. He is called upon in his home and at his office by trained salesmen gushing alluring inducements. All this costs millions upon millions of dollars annually, and it must pay, because the policy is consistently and continuously expanding year after year. The facts appear to warrant the assertion that few if any undertakings can be successful without proportionate advertising.

The question confronting us as veterinarians is whether we can continue to function independent of advertising, and I think no one will contend that we can. The reasons are obvious. Persistent propaganda has created a condition of dependence on the part of the public upon advertising. An article is more or less valued in proportion to the loudness and frequency with which it is publicly acclaimed. An appropriate illustration of interest to us is the great hold the proprietary remedy people and so-called chicken experts have obtained upon the poultry industry. As far back as 1914 these agencies were harvesting millions of dollars from the poultry industry through publicity efforts alone, while the veterinary profession has only now begun to render the service which it is its proper duty to render, and to obtain the revenue from it to which it is entitled.

Furthermore, during the period of advertising inactivity on the part of our profession, powerful influences have been spending great sums in an effort to convince the public that we maintain not only a useless profession but in many instances the impression was created that we are undesirable in the live stock industry. Only recently it was shown that a group of proprietary manufacturers contributed to a lobby to defeat veterinary legislation in half a dozen of our state legislatures and to enact legislation inimical to the best interests of the livestock industry, which is also the best interest of the veterinary profession. Some of the proprietary concerns involved are offering their products to the veterinary profession and are requesting the veterinarians' recommendation of them to stock owners. Politicians in an attempt to curry the farmers' favor have been and are yet preaching the gospel of veterinary inefficiency and extortion. As a profession we are derelict if we sit idly by and do nothing to counteract such pernicious propaganda.

The greatest and fundamental reason we should advertise our profession to the world, is because it is due to the livestock industry to see the veterinarians in their true light, a friend of the livestock industry and not a foe. It cannot be done any other way than that of grasping every opportunity to publish the benefits the profession has brought to the stock industry. Think of a few of them: Control of hog cholera, control of tuberculosis, control of black leg, control of anthrax, control of foot and mouth disease, and many others. Hog cholera immunization is as essential to the hog industry as fire insurance is to the owner of buildings. Why is this not commonly accepted to be true? Because the hog raiser has been bombarded with a preponderance of arguments against scientific hog cholera control. It is not only our privilege to correct such con-

* Presented to the 36th annual meeting of the Missouri Veterinary Medical Association, Fulton, July 27-29, 1927.

ditions, but it is also our duty. The natural question is how are we going to do it? And, before offering suggestions along this line, let us consider the fundamentals of successful advertising.

To be effective, advertising must have an appeal—an appeal of a practical nature. It must create an atmosphere of confidence. It must issue from carefully selected channels and must be repeated frequently.

**Twenty Veterinary Reserve Officers were ordered to Camp Snelling for training during the past summer. The illustration (Photo by Dr. W. J. Embree, Chicago) shows eighteen of them and Major Geo. W. Koon, their instructor. The group assigned to active duty for the period July 4-17, 1927, at Camp Snelling, comprised: Majors W. J. Embree, Chicago; Geo. E. Bartholomees, Sheldon, Mo., and Frank J. Younglove, St. Paul, Minn.; Captains Albert C. Barr, Kansas City, Norwood D. Niles, Albany, Mo.; Edwin F. Kallenberg, Cedar Rapids, Iowa; Rolo S. Montgomery, Taylorville, Ill.; Ralph A. Moye, Manchester, Iowa; Henry W. Tornow, Wichita, Kans.; and Wallace L. Williamson, Ralston, Nebr.; Lieutenants LeRoy E. Dietrich, Wichita, Kans.; William G. Keehn, Kansas City; Henry L. Kilhoffer, Buffalo, Ill.; Frederick Low, Oaks, N. Dak.; and Anthony J. Matter, Crystal, N. Dak.; and Second Lieutenants Arthur L. Born, Story City, Iowa; Frank W. Crawford, St. Paul, Minn.; Melvin L. Dietrich, Newton, Kans.; Ward R. Lee, Bermidji, Minn., and Cornelius Vanderwarf, Chicago Heights, Ill.**

The appeal is influenced by various factors. Perhaps the most common appeal is to the pocketbook. It is human nature to desire to consummate a shrewd deal. Pride is another factor of appeal. A community for instance, may be persuaded to do a thing as a matter of pride, when more practical appeals may fail. Leadership is a strong appeal, as is also duty, and numerous other things. Successful advertising takes them all into account and uses each where it is likely to obtain the best results.

We all realize from our personal dealings the importance of the atmosphere of confidence. To put over any advertising project, the public must be thoroughly satisfied that there is no joker. While Barnum's statement that American people like to be fooled was doubtless correct in his line, they at least must be convinced at the time that such is not the case. Perhaps the easiest way to instil confidence in any venture is to point out beyond question its practicability.

Important enough to be emphasized is the necessity of repetition. Continuous statements of actual or alleged facts gradually creates the impression of fact with such fixedness that controversion is often impossible even in the face of almost indisputable evidence. No program can be brought to a successful issue unless it is consistently and persistently followed up.

Without any claim to originality or infallibility, I want to suggest to you some plans of advertising which I believe to be practical and ethical and capable of producing valuable results for the livestock industry of Missouri and incidentally for our profession collectively and individually.

There are two methods of procedure: Group work, and individual work. By group work, I mean the pooling of funds to be

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utilized for the whole profession. By individual work, I mean for each man to act independently upon a concerted program. Of the two, the first is the more economical. Either method may be developed along two general lines, general publicity and direct publicity. Each of which are most productive when operated together. In general publicity are included newspapers and other printed information given general circulation. The public press in the past has not exerted itself to familiarize the public with the very meritorious service the veterinary profession has been rendering and in many instances such publicity as has been given to the service of veterinarians was of a damaging nature. The press is not to be blamed for such a situation because the profession has seldom replied to the attacks of inimical interests and the press was uninformed in the matter.

All this can be changed however if the profession will do a little regular advertising. As an illustration, let me suggest a campaign advocating the immunization of pigs just after weaning, authority for the printed statements to be assumed by this association. Copy of this type could point out the advantages of immunization at the early age of the pig and if the advertisement were repeated often it would surely increase pig immunization. Another method of general publicity is participation in public affairs, such as the state fairs, the various county fairs, local fairs and other public undertakings. If necessary send illustrated lecture tours through the state. Much indirect general publicity can be gained by working with the breeders' associations, and similar organizations.

Direct advertising can be profitably conducted through letters from the association or individual veterinarians; also through printed pamphlets mailed separately or included with statements or letters on business affairs. The veterinarians also can find many opportunities for public utterances which afford chances for publicity for the work of the association.

The important issues of any advertising campaign are directorship and the financing. These factors must be approached from a plain business point of view. In general lines of commerce a definite percentage of gross income is devoted to advertising. This percentage ranges from 2 per cent to 60 per cent according to the nature of the business and is regarded as a sales expense. The veterinary profession can well afford to consider the proposition on a basis of a definite budget for a period of time sufficient to produce results. All business concerns have some one who gives persistent attention to its advertising and we should have some one whose business it is to carry out any attempted program.

Another question of importance is that of ethics. I believe a campaign can be arranged which will be in harmony with the present conception of veterinary ethics. This is especially true if all the work done is carried on under the direct supervision of the association. It has been my aim to present this subject briefly and generally with the hope that it may create a discussion out of which we might formulate some definite plans for 1928. A detailed statement of a definite plan of action has been avoided, but, I know that several members of this organization have been thinking along the same lines as myself and I am sure if we try we can outline a program which will be profitable and practical without violating any of the essential conceptions of professional ethics.

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The product or service or firm which endures and grows will be the one that is best known to the most people. There was never so opportune a time in all history for advertising to produce quickly and build permanently, because there was never a market so big and so growing. That which is deeply rooted in the people will never wholly know death, it will outlast oblivion.

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If you don't love your job, don't worry about it; some other fellow will soon have it.—Elbert Hubbard.

# Worm Parasites of Philippine Chickens*

By MARCOS A. TUBANGUI, M. Sc. D.V.M., Los Banos, P. I.
College of Veterinary Science, University of the Philippines

AVIAN parasitism is a common condition throughout the world. Chickens are subject to the ravages of over fifty different kinds of parasites. Because of the prevalence of parasites and the injury incident to parasitism, it behooves the veterinarian to become familiar with the different species of parasites and effective methods of control and eradication.

The author identified eighteen species of parasites in chickens, most of which were from Los Banos and is of the opinion that these parasites represent more or less completely the worm fauna of the Philippine domestic fowls. The round worm was most frequently encountered.

### Effects of Parasitism

The damage done by different species of parasites is quite variable. It is reasonably safe to assume that even those parasites that do little or no direct damage are either directly or indirectly injurious. In some instances, parasites are injurious because they diminish the resistance of the fowl or may be actual carriers of infection. Thus the cecal worm (*Hetarakis gallinae*) plays an important role in infectious entero-hepatitis in chickens and turkeys. The *Gonglyonema ingluvicola* may be a factor in the occurrence in cancerous tumors.

Direct injury induced by parasites is the result of abstraction of nutrition, withdrawing blood or other tissue juices, obstruction and by the influence of chemic substances that are toxic or capable of producing irritation. Tape worms and round worms produce direct injury to their host.

### Symptoms

Symptoms indicative of avian parasitism are variable, depending upon the species of parasites and the degree of infestation. Slight parasitic infestation may not produce any visible symptoms, or the affected birds may appear unthrifty. Extensive parasitism is usually manifested by irregular appetite, wasting away, ruffled feathers, disturbed locomotion, and a persistent diarrhea. As the condition becomes more advanced the affected bird will remain for hours in the same position with eyes closed. Such cases usually die regardless of treatment.

### Diagnosis

The diagnosis of avian parasitism is not an easy matter. In most cases, it is advisable to destroy and carefully autopsy one or more of the affected birds. In the earlier stages of the disease, a microscopic examination of the feces may reveal the ova of the parasites.

Identification of the species of parasites is of value in instituting control measures and prescribing treatment. Various vermifuges have been used in the treatment of avian parasitism, proper preparation of the fowl prior to the administration of any vermifuge is always advisable. Nicotin, either as tobacco, nicotin sulphate or black leaf 40 has proved of considerable value in the elimination of round worms and cecal worms. Some authorities recommend a combination of carbon tetrachlorid and nicotin. Thus Graybill and Beach found that 3 cc of carbon tetrachlorid and one-half gram of black leaf 40 given by the mouth in a gelatine capsule eliminated practically all round worms.

Oil of chenopodium mixed with some bland oil is also of value as an avian vermifuge. Areca nut has been used rather extensively as a vermifuge and has some value.

*From the *Philippine Review*, abstracted by A. T. Kinsley.

### Control Measures

Generally speaking, it is more economical to prevent parasitism than it is to treat affected individuals. The author suggest the following general control measures.

Frequent collection and prompt disposal of all droppings. This is applicable only when chickens are kept in small enclosures. Monthly rotation of chicken yards and runs. Destruction of intermediate hosts of parasites such as slugs, house and stable fly.

Frequent mass treatment of flock with suitable anthelmintics. The use of nicotin and areca nut together or alternately for three or four weeks, two or three times yearly is recommended.

## COWBANE POISONING IN YELLOWSTONE PARK

My attention was called to the poisoning by cowbane of a ranger in Yellowstone National Park. I have just received Vol. IV No. 5 of Nature Notes from Yellowstone Park, in which there is account of some of the poisonous plants, mentioning particularly the water hemlock, or more properly, the cowbane. This is the western species, *Cicuta occidentale*. The following is taken from the Notes:

"There are only a few poisonous plants here and one seldom if ever hears of a case of park animals being poisoned. The recent death of our fellow ranger Charles Phillips is the only case we have knowledge of the poisoning of a human being in the Yellowstone. Water hemlock, probably the plant eaten by Mr. Phillips, has a poisonous root. All parts of the tall and low larkspurs above the ground are known to be poisonous to cattle but this plant is only fatal when eaten in great quantities and loses its poisonous properties after it has bloomed. The pods and seeds of lupine, or Texas blue bonnet are poisonous to sheep and all parts of the plant of loco weed, a related plant, are poisonous to horses, cattle and sheep at all times of the year. We have very few of these plants. Zygadenus or death camas is a very common park inhabitant which is also fatal to horses, sheep and cattle. The entire plant is poisonous and especially the seeds. Fortunately, all of these poisonous plants are eaten by animals only when other forage is scarce, or, in the case of water hemlock, the roots are pulled by mistake with a mouthful of other food from the loose, marshy soil where it grows."

Several cases of poisoning from cowbane, the one native to Iowa, *Cicuta maculatum*, have been reported this year in Iowa. Therefore this note of poisoning from the western species is of particular interest.

Ames, Iowa. L. H. Pammel.

## SQUILLS AND THEIR ALLIES POISONOUS

Dr. Geo. H. Conn, of Freeport, Illinois, who is interested in the toxic properties of plants, writes as follows:

"I am writing you at this time to inquire about a species of plant known as Urginea, which I understand is very closely related to the "Scillas," many of which contain the toxic glucoside known as "Scillotoxin." *Urginea maritima* is the source of the "Squills" of commerce, a medicine which is used to some extent in medicine in America, but no doubt used in considerably greater quantities in Europe.

"I just recently had a bulletin from the Department of Agriculture of the Union of South Africa, this being Bulletin No. 7, date 1922, on Slangkop. In this bulletin, I find Urginea Burkei, Baker, which is also known as Transvaal Slangkop. This plant has a deep red bulb three to four inches in diameter, and is more or less urn shaped. It flowers in the spring with a beautiful white spike, and I understand is grown in some sections to be used as a flower. This flowering takes place in the spring of the year, but if the rains bring on sufficient other green stuff, sheep and other livestock do not eat Slangkop. In the fall of the year, when most of the grass is dead, the leaves of this plant are still green, with the result that in October sheep often eat this plant and become poisoned. The bulbs have been dug and extracts have been made from them, which were very poisonous.

"*Urginea Macrocentra*, Baker, also known

as Metal Slangkop: This is a small bulb about two inches in diameter. This bulb produces a stem one and one-half to two feet in length, upon the top of which is found, in the spring of the year, a lilac colored flower four to eight inches long. This plant flowers at the same season of the year as the other Slangkop, and while no tests have been made to determine its poisonous properties, it is also thought to be present, due to having the same general makeup as the other.

"Would you be so kind as to advise me whether or not this plant is produced in any appreciable quantities in this country or Canada, or whether a similar plant is to be found?"

The Slangkop, *Urginea Burkei,* with a deep red bulb which is more or less urn shaped produces elongated leaves which appear after flowering with small whitish flowers in a raceme commonly called a spike. According to Sydney M. Stout, poisoning usually occurs from September to October. The bulb contains an extremely toxic poison. There are something over one hundred species of Urginea. Of these something more than 65 since the publication of the Index Kewensis. They are found mostly in Africa, India, extending from the Mediterranean region to the Cape and Madagascar. Many in tropical Africa. Three only are found in the Mediterranean region. One is the *U. maritima.* Dr. Stout describes four species occurring in South Africa which are poisonous to stock, namely *U. Burkei, U. macrocentra* (Natal), *U. altissima,* and *U. sanguinea.* All of these are said to possess the same chemical properties. These plants are related to squill, the squill used in medicine (*Urginea maritima*), a plant which was early recognized as a valuable medicinal plant. It was cultivated in Europe as early as 1630. Squill is one of the oldest drugs, mentioned by Ebers papyrus 1550 B. C., Hippocrates 460 B. C., Pliny 50 A. D. The constituents are Scillistin, a bitter principle, Sinistrin, which resembles dextrin, Scilli picrin, a bitter principle which acts upon the kidney; Scillitoxin, a glucoside which acts upon the kidneys and heart, Scillin, which induces vomiting. The poisonous properties of squill are well known. It is a highly irritant poison and causes gastro enteritis, bloody urine and convulsions. Death is caused by heart paralysis, similar to the action of digitalis. The *U. Indica* is similar in action. This is found in India to the Himalayas.

Many plants of the lily family are poisonous: green Hellebore (*Veratrum viride*). H. S. Goodell obtained from death camas an alkaloid resembling veratalbin. Prof. Heyl obtained from another camas plant (*Z. intermedius*) zygadesin which resembles veratrin. Another native plant of the lily family known as bunch flower (*Melanthium Virginicum*) also contains toxic properties and this is not uncommon in southern and southeastern Iowa and southward. Many other toxic plants are found in this family, therefore cases of poisoning are not infrequent. There are also several poisonous plants in the related Amaryllis family. Of these the staggergrass (*Altamasco*) native to the southern states is reported as poisonous. None of the species of Urginea mentioned by Dr. Conn are native to the U. S., nor are they cultivated except in greenhouses.

Ames, Ia. L. H. Pammel.

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## RAPE SOMETIMES INJURIOUS

Dr. Guy S. Jones, Lohrville, Iowa, writes: "One of my clients has inquired regarding the possibility of rape pasture being injurious to calves. Do you have any knowledge of any toxins that might be produced by the action of frost or other conditions?"

Rape makes an excellent feed for most live stock, but under certain conditions has been reported as injurious to pigs, especially when frosted. It is slightly pungent owing to the presence of certain properties that are generally found in the mustard family. I have the following note in my "Manual of Poisonous Plants": "Rape under some conditions is poisonous. Several correspondents in Breeders' Gazette (Chicago) have ascribed poisoning where rape was frozen and when the plants were wet with dew."

—L. H. Pammel.

# The Fox Terrier in India

**A Wife and a Dog—"Jacky" as Watchman—The Rajah's Fancy**

**By CAPT. GEORGE CECIL**

### Suited to the Horrible Climate

Man, we are told, should not live alone, and in India the Briton abides by this dictum. The exile keeps a dog, a fox-terrier, for choice; even if possessing a wife, he takes to himself a dog, perhaps two or more and of fox terrier breed, for this variety stands the horrible summer climate best. The animal, being short haired, is little affected by the frightfully enervating "hot weather," or, at all events, comparatively little provided he is a "country bred." The creature may, when the red-hot sun blazes its fiercest, go mad, unintentionally sending cases "home" to the Pasteur Institute. Still, all things considered, the fox terrier is well suited to the Anglo-Indian's needs.

That the "farx" (as the natives pronounce and abbreviate the puzzling words "fox" and "terrier") is admirably adapted to the requirements of the white man cannot be doubted. He sleeps on "Master's" bed and travels in the railway carriage with him. When the *Sahib,* keen on breathing fresh air, takes an evening drive in a swiftly moving car, Jacky sits by his side, or, if there is a lady present, reluctantly occupies the seat next to the chauffeur. In addition to the sundown drive, the "farx" accompanies "Master" on the golf links, on sporting expeditions and early morning rides, to the office, and to the club tennis courts. During the progress of the game, he and the other dogs are kept at a distance. Running after the balls is not encouraged; vainly do they implore permission to play with them.

The fox terrier also takes part in jackal hunts, routing out the "jack" when the wily one goes to earth. He may get badly mauled over the business, the jackal fighting like its cousin, the wolf, and being about four times heavier than its opponent. The plucky little chap also joins in the chase, to be left behind owing to the superior length of stride possessed by the *Rampur* hounds and other tykes. Panting, he puts in an appearance at the first half.

W. C. Sprinkle has disposed of his practice in Oaktown, Indiana, and located at Martin, Tennessee.

### On Police Duty

As a watch dog, the fox terrier has his uses, and when, at night, thieves are afoot he is particularly alert. Sleeping on the verandah with one ear cocked, and a half-closed eye, the watchful sentinel hearing the stealthy tread of the marauder as he threads his way through the bushes and past the beds of tropical flowers, yap-yaps. The *chowr* hastily decamps, whereupon Jacky barks his loudest. The *Sahib,* rifle in hand, is quickly on the scene; the native servants, leaving their odoriferous quarters, join in the hue and cry. Sometimes the unfortunate thief is laid low by a bullet; frequently he shows a clean pair of heels to his pursuers. Or poor Jacky, being too near the object of pursuit when "Master" lets fly, may like Mr. Tapman in the "Pickwick Papers," receive the leaden messenger despatched by an Anglo-Indian Mr. Winkle. He then is buried with pomp, his grave being garlanded by the sorrowing domestics. Very touching is the scene.

The natives as a rule, are not partial to dogs, regarding them as soulless, unclean beasts. "O dog, son of a dog!" is a common form of abuse in Mahometan circles, while Hindus gladly liken their mothers-in-law to dogs. But, colored servants usually know better than to express disapproval of the *Sahib's* fox terrier. They cosset the pet—especially

when the *Sahib* is within earshot. . . . "My pearl!" says the black cook, employing the honied metaphor of the East, "Doth thy honourable stomach yearn for breakfast? Art ready for delicately chopped liver cunningly mixed with rice? Come then, O beloved, 'tis thine!"

Should Jacky, in an enterprising moment, help himself to "Master's" curried prawns, there is trouble. Mahomet Bux may catch the pilferer a clip over the quarters cursing him as a base-born cut of despicable morality. Well deserved is the timely admonition.

### "Borne on the Strength"

The fox terrier bulks largely in barracks and throughout the length and breadth of Indian cantonments, almost every British soldier possessing one. The dog loving warrior, in the intervals of being subjected to the wearisome inanities of useless drill. devotes much time and trouble to Jacky's toilet. The animal is washed daily; the most diligent search is made for those lively visitors who consider a dog's coat their proper abiding place; his health is the soldier's first care. He sometimes learns to "shoulder arms," to "stand at ease," to "salute his superiors," to "die for King and Country" and to "bite the Germans." Most accomplished!

Should a fox terrier have been appointed regimental mascot to a battalion he is entitled to rations, these being drawn every morning by the quarter master sergeant, and entered on a multiplicity of army forms. If Jacky falls ill, he is doctored by the Royal Army Veterinary Corps officer, and cured. "Borne on the strength," his status is that of a charger.

### Where the "Country-Bred" Scores

Although there is a great demand for fox terriers which have been bred and brought up in India, well to do Europeans often import prize-winners from England. Those who can afford luxuries, even go the length of thinking that no "country-bred" is worth possessing. This, however, is ridiculous, for the dog which has been pupped in India stands the hot weather and rains far better than does the imported variety. Indeed, the exotic acquisition has to be sent to the "hills" as the Himalayas are termed; let him remain in the "plains," and he may succumb to unavoidable circumstances. From April till July heat apoplexy awaits Jacky and the rainy season, which follows, brings in its train, bursati (a horrible form of skin disease). The country-bred, unless a born weakling has no difficulty in surviving these ailments. The lordly importation, unless packed in ice and railed to Simla, quickly turns up his toes. 'Tis Kismet!

In the welcome "cold weather" fox terriers are entered at dog shows. The prizes may not be of great value; but the Anglo-Indian owners are out for honor and glory alone. Paltry rupees are nothing to them; all that counts is the satisfaction of knowing that the valued tyke has distanced its competitors. Theirs is the sporting British spirit.

### Unrequited Affection

Rajahs and other potentates, to whom a fistful of money is as so much dust, spend vast sums in acquiring fox terriers of perfect make, shape and markings. Emissaries in Paris and London send them alluring photographs of prize animals, quoting a price which covers a trifle for the intermediary and a cable instructs the agent to dispatch the treasure. The importation is met at Bombay by His Highness' local representative, and a black kennel attendant, and conveyed to its destination by train or motor car. The journey may take from twenty-four hours to a couple of days and more, distances in India being enormous.

Should the imported fox terrier fail to please the Rajah, the emissary is sacked. If Jacky does not take to his new master, he is presented to the *Diwan* (prime minister) or to another courtier. His Highness is too proud to impose affection where it is not wanted.

# YOUR DOG AND MINE*

Copywright, 1926, by Associated Editors, Inc.

## WORMING PUPPY

BEYOND any question many dogs harbor intestinal parasites—have worms. It is equally true that many puppies die from the effects, direct or indirect, of intestinal worms. Still, there is little justification for the widely prevalent idea that all puppies should be "wormed" at about weaning time or shortly thereafter.

Nearly everyone over forty years of age can remember when children were given sulphur and molasses for a spring tonic as a matter of routine. We now know there was no basis in reason for this practice, yet there was a time when children's welfare was believed to depend upon it. Equally without foundation in fact is the notion that puppies must be wormed just because they are puppies.

A puppy should be treated for worms only when a fecal examination, made with microscope, has shown that it is passing worm eggs in considerable numbers. And then the worming, as it is popularly called, should be done discriminately; with the remedy selected for the particular parasite it is intended to destroy and the dose carefully adjusted to the age, weight and condition of the puppy.

It must be remembered that a drug that will poison a worm in a dog's intestines will also poison the dog if enough of it be given. In the case of the effective worm removers, the dose required to kill the worms is almost large enough to seriously injure the dog. Veterinarians express it by saying the "margin of safety is narrow." This is to say, a dose that is too small does not kill the worms and a dose that is too large will harm or kill the dog, and that there is not a great deal of difference in the size of the useful dose and the harmful dose.

As the amount of worm poison a dog can tolerate without serious harm depends upon age, weight and the condition of its health, it is manifestly impossible to prepare a remedy that in only one or two sizes of doses can be given to all dogs as a routine treatment for worms. Such remedies are dangerous to small weak dogs, just right on a few and inadequate to rid the great majority of infested dogs of all the parasites they harbor.

The foregoing has reference to round worms, the common intestinal parasites of dogs. Dogs harbor tapeworms or flat worms also, but these parasites are more rare than the round worm. Their presence can be discovered without the use of a microscope by the segments or flat pieces of the worm that are passed from the bowels.

A dog should be treated for tapeworm immediately upon the presence of the worm being revealed, whether or not it is effecting the health of the dog. Some of the tapeworms of dogs are communicable to man, and a dog harboring them may be to some extent a menace to the safety of its human associates.

In the treatment for tapeworms in dogs, the dose does not have to be so nicely adjusted as for round worms. In other words, the margin of safety is larger. The thing that is essential in tapeworm treatment and the thing that is most difficult to accomplish is the removal of the tapeworm head. If the head does not come away, the worm will speedily grow again.

*The two articles under this head are part of a series of fifty-two discussions written by the editor of VETERINARY MEDICINE and distributed by a newspaper syndicate organization to various daily newspapers for use in their Saturday editions each week. Although written exclusively for lay readers they are offered here, with permission of the syndicate, for such suggestions as they may contain, for the veterinarian who desires to instruct his clients in the care of their dogs, with a view to increasing the popularity of this animal among those whom he serves. Where some repetition is noted, it should be remembered that the articles were published separately at weekly intervals and it was necessary that each be in a measure complete.

## TAPEWORMS

THE dog, like other animals and man, is host to a variety of those ribbon-shaped, segmented, intestinal parasites commonly called tapeworms. In Europe fifty per cent of all the dogs are said to harbor one or more varieties of tapeworm. In this country these parasites are fairly common among farm and range dogs; in city dogs they are uncommon to rare.

Tapeworms have peculiar habits. They never complete their span of life in a single host or even in one species of animal. They complete their life cycle in the species where it began but spend an intermediate stage in

an entirely different kind of host. For example, certain tapeworm eggs are produced in the intestines of a dog, fox, wolf, or other flesh-eating animal. These eggs are scattered upon the ground by the million, and some of them are swallowed by herbivorous animals with their food. Embryos bearing no resemblance to adult tapeworms emerge from the eggs and make their way to the various parts of their new host and become encysted; that is, they form sort of nests where tapeworm heads are developed. With most varieties no further change takes place until the animal dies, and its flesh is eaten by the species of animal from which the tapeworm eggs originally came. Where this occurs, these encysted tapeworm heads are released and they at once attach themselves to the intestinal wall of the flesh-eating animal and start the growth of a new tapeworm, which in a short time is producing eggs in enormous quantities to be scattered upon the feed of grass eating animals and so the life cycle is complete.

The infestation of persons with tapeworms of the dog is rare. It should never occur. Because of this danger and for a number of other reasons, your dog should be treated as a dog and not as a human. Care must be exercised to prevent children from eating from the dog's dishes and to prevent dogs from eating from dishes from which the children are fed. The dog should be taught to refrain from licking the faces and hands of children and others.

With the observance of the foregoing measures, the danger of the infestation of persons with tapeworms from the dog is mainly obviated; but for the welfare of the dog and because the foregoing precautions are not likely to be carried out at all times, it is important to prevent the infestation of the dog by tapeworm. In cases where the animal is infested, treatment should be given for their removal promptly.

Dogs are infested solely by eating flesh containing tapeworm cysts. The sources of infestation are slaughterhouse offal, carcasses of animals that have died of disease or accident, and rabbits, hares, etc., that are caught and eaten by the dog. Fleas and lice also harbor the cystic stage of one kind of tapeworm and when swallowed by a dog result in infestation. A consideration of these sources explains the frequency of tapeworms in the farm dogs as contrasted with city dogs whose chief exposure results from occasional raids on garbage cans, and the rather infrequent infestation from swallowing affected fleas and lice. There is small danger of infestation from meat intended for human consumption for such meat, if it has passed the federal meat inspection, rarely contains tapeworm cysts.

Dogs closely associated with persons should be inspected annually for evidences of tapeworm infestation and treated promptly when any evidence of infestation is found. The treatment except in weak or ailing dogs, is simple, and when properly applied, practically 100 per cent effective. The inspection and treatment should be carried out by a competent veterinarian.

## NEW HAMPSHIRE VETERINARIANS MEET AT CONCORD

The semi-annual meeting of the New Hampshire Veterinary Medical Association was held at Concord and called to order by Dr. Fay Russell on August 18th in one of the large rooms of the Doctor's modern and artistically planned home.

While the meeting was going on, Mrs. Russell was busy entertaining the wives and friends of the members.

Before taking up the regular program Pres. Russell asked Dr. R. W. Smith to announce the sudden death of Dr. H. S. Perley, who had died but a few days before. Dr. Smith in a very kindly way referred to Dr. Perley's life and his activities and loyalty to his fellow-veterinarians and the New Hampshire Association. President Russell then appointed a committee of Dr. R. W. Smith, Dr. E. A. Crossman and Dr. W. B. Mowers to draft suitable resolutions in memory of Dr. Perley, a copy of which to be sent to Mrs. Perley; also a resolution of condolence to be sent to Dr. C. E. Swail of Colebrook, N. H., who recently suffered the loss of his wife.

Dr. J. F. DeVine of Goshen was the first speaker on the program. He took as his subject four cases he had visited the day before with Dr. Russell. One case was a valuable cow that the doctor had treated with Dr. Russell about a year previous. She had been giving quite a bit of trouble due to endometritis and cystic ovaries. Dr. Russell followed up the treatment and later advised breeding her. She was bred a couple of times and then heat periods ceased. As she was growing very fat the owner began to feel she had not conceived. Diagnosis was that she was pregnant somewhere between five and one-half and six and one-half months. Upon looking up the last breeding date it was found that she had been bred just six months previous. Dr. DeVine explained that the calf could not be palpated at that age either by the flank or per rectum, the fact that the uterus was pulled forward and the artery enlarged and pulsating, a diagnosis of pregnancy could be made. He warned novices to watch out for such cases and not send them to the block as so many have done.

Another case presented for diagnosis of pregnancy was found to be 12 weeks pregnant.

Another was a heifer with right ovary drawn forward and adherent so much that the tube could not be outlined. But the left ovary was normal and functioning as was evidenced by a corpus luteum. There was also a slight catarrhal condition of the vagina and cervix. The heifer had been repeatedly bred without success as is so often the case when the right ovary is not normal or not functioning. Treatment was hot douching, daily for a while, then occasionally and breed early and late at each estral period.

Another case was a mature cow that was treated by Dr. DeVine and Dr. Russell three years previous suffering with a chronic endometritis, cystic ovaries and cervicitis. Treatment at that time was mineral yeast, metritis bacterins, massaging and hot douching. The cow responded to this treatment and has since dropped two normal calves. Her present condition indicated that she needed the same treatment again and it was advised that mineral yeast be added to her ration constantly to prevent a recurrence of the trouble, as she is a heavy producer.

The next speaker was Dr. E. A. Crossman, who spoke on "Mistakes in Diagnosis of Pregnancy." The doctor recited an experience where a dairyman had bought some valuable cows subject to veterinary examination. They were sold to be with calf but the veterinarian pronounced them all barren. The outcome was that the buyer and seller agreed to have the animals slaughtered and if not with the calf the seller agreed to refund the purchase money. All animals proved to be carrying good sixed calves. This emphasized the danger of six months pregnancy that Dr. DeVine had spoken of.

Dr. Harry Jenkins spoke on the subject of "Rabies" and he asked the cooperation of all practitioners in discouraging the practice of giving a single inoculation of Rabies Vaccine to dogs that have been bitten by rabid animals. The single dose is not effective in such cases and it is an injustice to this biologic, which has merit if properly used, as a preventive of rabies *before* inoculation.

Dr. E. M. Gildow and Dr. Wisnicky of N. H. State College each spoke briefly and very practically on fowl typhoid and its differentiation from fowl cholera. We wonder if the poultrymen of New Hampshire appreciate what it means to have such capable men at their service. We hope so.

Others who took part in the general debate that followed and added to the interest of the meeting were Dr. L. A. Haubrich of Claremont, Dr. H. M. Lewis of Nashua, Dr. W. B. Mowers of Lebanon and Dr. F. S. Gray of Plymouth.

The meeting then adjourned to enjoy some refreshments and to listen to and enjoy an unusual musical program given by the talented two daughters and a son of Mr. and Mrs. Robert Stobie, neighbors and friends of our hosts.

We next inspected one of the largest and most modern veterinary infirmaries in the East. A structure of splendid architecture set on the hillside, beautified in front by well-kept lawns and flower beds and flanked by several groves of majestic pines, where both large and small animals are allowed to run in every comfort that nature affords. The building proper is arranged with receiving room, offices, operating room, wards for surgical cases and various wards with steel kennels for the everyday cases. The entire building is sanitary in construction with all modern improvements, such as light, heat, sewerage and water. In fact, the entire building is such that only a highly intelligent and energetic veterinarian would think of its planning and operation.

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## REPORT OF THE MISSOURI VALLEY VETERINARY MEETING

The Thirty-fourth annual meeting of the Missouri Valley Veterinary Association, held at Omaha, Nebraska, July 11-13, 1927, was considered by the 178 veterinarians who attended, highly successful both in attendance and interest. Nineteen new members were added to the roll, which makes the membership in good standing, approximately 250. Registration was required by all those entering the meeting room and members were required to pay their dues and visitors to pay a registration fee of $3.00, which is the amount of the annual dues. This plan proved very successful from the treasurer's point of view and was generally well received by all those attending, although not well understood by a few. The registration fee system is being accepted and urged for all conventions as the fairest method of meeting expenses incurred. It is certain that if we are to have programs which are worth the time and expense involved in attending our meetings, the necessary funds must be secured some way. Besides, registration checked undesirable people from attending, for visitors had to be approved by a member.

The talent for the program was carefully selected and all the speakers gave their listeners their money's worth, for the subjects were highly interesting and instructive. Dr. A. F. Schalk of the North Dakota Experiment Station spoke on "Sweet Clover Poisoning"[1] and on "Some Phases of Ruminant Digestion" and his discussions were very complete and up to the minute. Dr. T. A. Sigler talked on the A. V. M. A., and his experiences as President. We were glad to have him with us and appreciated his effort in attending in spite of his recent injuries. Dr. J. W. McGinnis, practitioner at Ord, Nebraska, gave a very interesting account of his experiences in treating horses for bots.[2]

Dr. Cooper Curtis of the U. S. Bureau of Animal Industry, addressed the association on parasites of sheep. He said that he considered the combination of the copper sulphate and tobacco treatment of stomach worms was more effective than either alone, and that this combination disposed of some other intestinal parasites as well.

Dr. E. D. Criswell of King City, Mo., presented by "My Method of Building a Poultry Practice,"[3] stating that he built his poultry practice to over $100.00 a month by advertising in the local paper that he did poultry work, by making autopsies free, and by talking poultry diseases when on other calls and incidentally picking out sick chickens and holding autopsies at the farm.

Dr. Alvin Broerman of the Ohio Department of Agriculture gave a very interesting and comprehensive discussion of poultry diseases,[4] more especially of chicks. He also demonstrated at the clinic the various biologic tests and showed his method of administering medicines to chickens. A great deal of interest was shown in his talk and many valuable points were brought out.

Dr. C. W. Brower of Topeka, Kansas, presented the subject of the use of the x-ray and fluoroscope in small animal practice and he pointed out the many occasions he has for the use of this equipment. Dr. W. M. McLeod of the Veterinary Division of the Kansas State Agricultural College, presented a paper on intraspinal anaesthesia in equines and bovines and demonstrated this new method at the clinic. This is the first veterinary meeting at which intraspinal anesthesia in horses was presented or demonstrated and it created much interest for it seemed very practical. Dr. McLeod also demonstrated at the clinic, the use of the new wire obstetrical saw advocated by Prof. Frans Benesch of Vienna, Austria. Its use should eliminate with all other embryotomy operations and make obstetrical work much easier for the practitioner.

Dr. Herbert Lothe of Waukesha, Wis., conducted a very interesting question box on dairy cattle problems covering sterility work, udder operations and digestive disturbances and he answered the questions from his experience in every day practice in a manner that was very useful and instructive. Dr. Lothe also demonstrated sterility operations from specimens of diseased genital organs before the clinic.

Dr. H. E. Biester of the Veterinary Division of the Iowa State College, presented an illustrated talk on infectious enteritis in swine in which he showed very clearly the pathology of the condition and the mode of infection. He also demonstrated at the clinic the microscopic examination of feces of dogs for parasite eggs. He recommended the centrifuge method over the smear method, for he said he could secure a sample thus which had 600 times the concentration of eggs the smear method could secure. He used the sugar solution to float the eggs in the centrifuge. The entire time for this method of examination does not exceed ten minutes and the examination is complete and much more thorough than the smear method.

For the clinic, also, Dr. L. V. Skidmore of the University of Nebraska, demonstrated the proper method of collecting and shipping material for laboratory examination and he pointed out some common errors and how to correct them, stating that a laboratory was dependent on the proper cooperation of the practitioner sending in the specimens for best results.

The following officers were elected: President, E. L. Dicke, Louisburg, Kansas; Vice-President, C. J. Scott, Knoxville, Iowa; Secretary-Treasurer, E. R. Steel, Kansas City. The following trustees were elected: H. M. Kirk, Griswold, Iowa; J. W. McGinnis, Ord, Nebr.; J. W. Chenoweth, Albany, Mo.; Albert Kushner, Topeka, Kans.; and Thos. P. Crispell, Parsons, Kans.

Kansas City, Mo. E. R. Steel, Secretary.

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[1] Published in September issue of VETERINARY MEDICINE, see page 362.

[2] Published in September issue of VETERINARY MEDICINE, see page 375.

[3] Published in October issue of VETERINARY MEDICINE, see page 427.

[4] Abstracted in September issue of VETERINARY MEDICINE, see page 366.